DUPLICATE

VIRGINIA MEDICAL MONTHLY

Official Publication of the Medical Society of Virginia

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DUPLICATE

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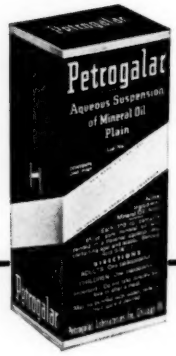

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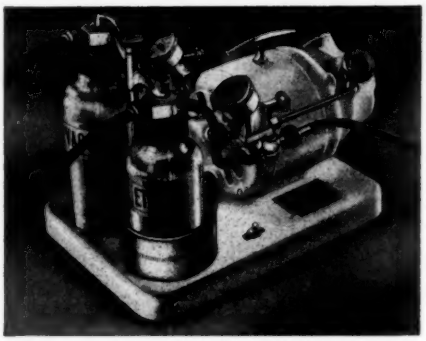

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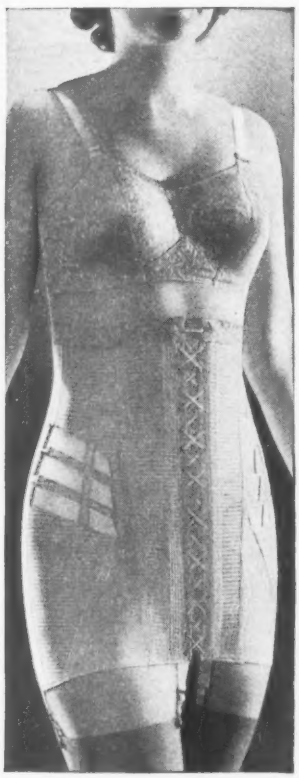

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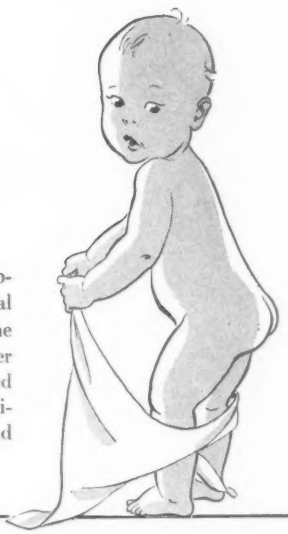

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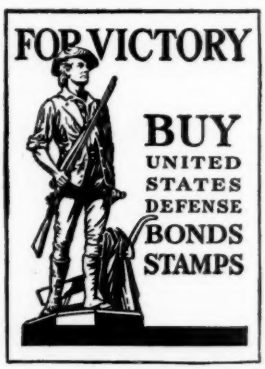

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**J.A.M.A., 93:1110—October 12, 1929*
Brückner, H.—Die Biochemie des Tabaks, 1936

***The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*

****ibid. p. 5*

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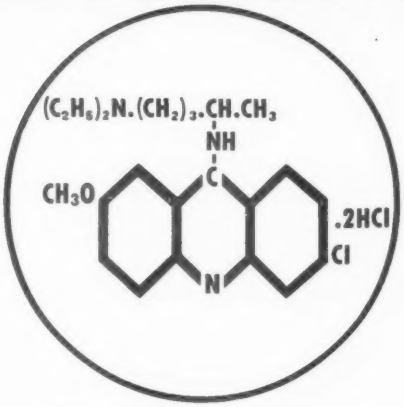

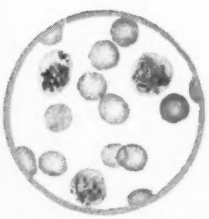

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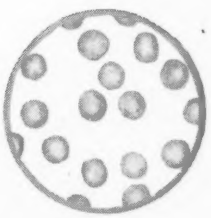

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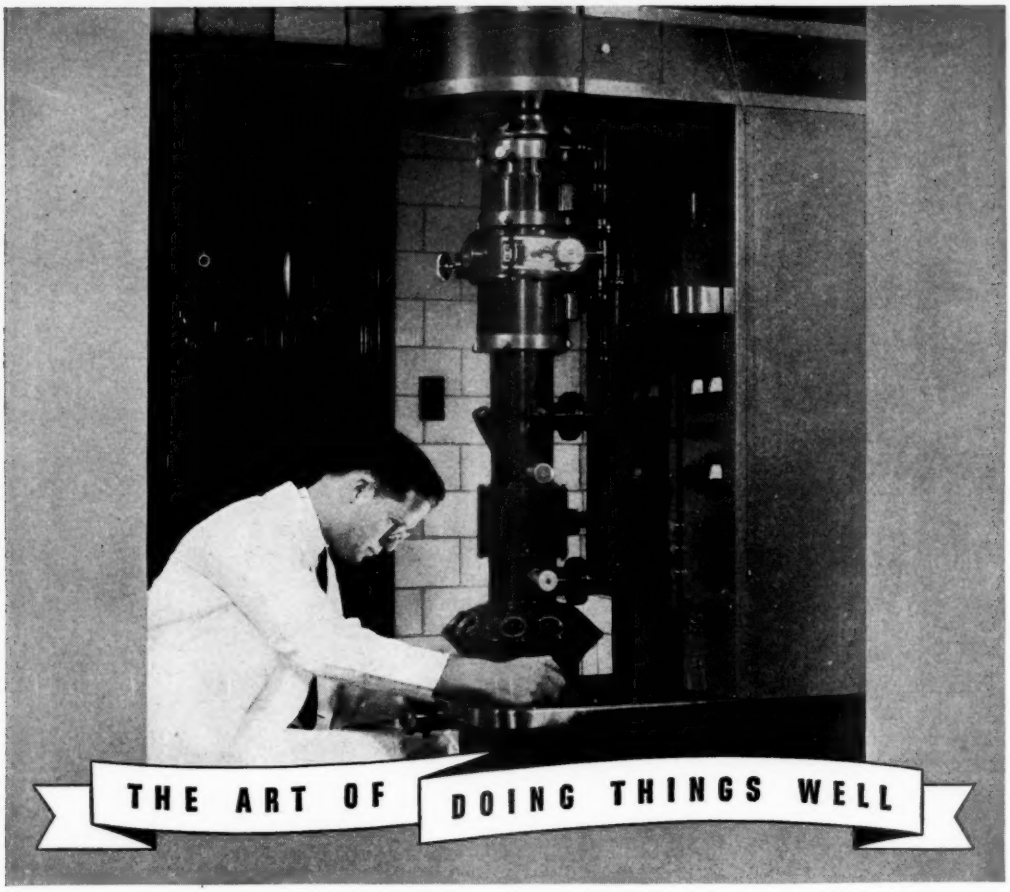

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WHOLE No. 1081. RICHMOND, VA., JULY, 1942. $2.00 A YEAR
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Guest Editorial

Combination in Restraint of Trade

A DOCTOR in Richmond in 1942 would have a hard time to "sell" his practice. Conditions were different in England during the formative period of our law. When the beloved physician of Little Swithington decided to retire, he could and did sell his practice to some up and coming young man from the city, who moved to the village and succeeded to the practice for the reason that there was no other doctor in the neighborhood. To make sure that he got what he bargained for, he insisted that the selling physician promise not to compete with him. Sometimes the older man regretted the bargain and tried to resume his ministrations. The young man could file a suit in the Court of Chancery to enjoin this breach of contract and to keep the retired physician in a state of retirement. The Court would issue the injunction if it regarded the contract as reasonable, and it always referred to such contracts as "contracts in restraint of trade."

In 1890, Senator Sherman won undying fame and the Granger vote by getting his anti-trust law passed. This law forbids every contract or combination in restraint of trade or commerce. It applies to the 48 states and the District of Columbia, but the authority of Congress is greater in the District than it is in the states. It owns the District and can regulate all activities there; but, in the states, it can regulate only interstate commerce. Nothing that does not itself move or cause something to move from one place to another, can be regarded as "commerce," and since a bed-ridden patient is extremely static, the practice of medicine cannot be considered to be commerce.

The courts attribute to Senator Sherman and his friends the intent to exercise the full power of Congress, and therefore the words "trade and commerce" are held to mean something very different in the District from what they mean as applied to the States. In both places they mean as much as they constitutionally can mean. In the District the words are given their old English meaning and there they apply to the medical profession. They cannot be given that meaning in the states, and the medical profession has nothing to fear from Thurman Arnold outside the District of Columbia.

We have in Virginia an anti-trust act that corresponds to the Sherman Act, but we have nobody who corresponds to Thurman Arnold. Moreover, the Virginia statute was construed in 1933 by the highest Virginia court in such a way that it could not apply to the medical profession. (*Werth* v. *Fire Adjustment Bureau,* 160 Va. 845). Therefore the decision of the United States Court of Appeals for the District of Columbia in the case of *United States* v. *American Medical Association* contains no threat to medical ethics in Virginia.

XUM

Two years ago the District of Columbia court ruled that the Medical Association would have to stand trial on the indictment; and the Supreme Court refused to review the case. Last year the trial resulted in a verdict of guilty which was affirmed on June 15th of this year by the Court of Appeals. The Supreme Court will again be requested to hear the case and the chances are about one in five that it will do so.

In its latest opinion, the Court of Appeals of the District made some interesting comparisons between the medical and the legal professions, suggesting that both are due for an overhauling. The Court refers to the fact that lawyers were formerly completely independent, whereas "now many of them are salaried employees on the staffs of large corporate industrial and financial organizations." The Court seems to miss the ethical point involved. No professional man objects to working for a salary so long as he renders services to the person who pays him the salary. The objectionable feature of Group Health Association (which the A. M. A. was convicted of boycotting) was not that it paid salaries to professional men, but that it sold the services of professional men to its customers. A lay organization can legally advertise for customers; and once competing corporations start advertising for customers for medical services, the ethical practice of medicine is on the way out.

When a lawyer works for a bank or a railroad on a salary, the corporation is not selling his services to its customers. If the bank gets its lawyer to prepare a customer's will, the bank is violating the law and the lawyer is violating the ethics of his profession. Similarly a lawyer may not accept employment from the American Automobile Association to help its members who have accidents, and may not accept employment from the Richmond Academy of Medicine to collect its members' bills. Apparently the only gap in the Virginia laws is the curious exception in the medical practice act which allows an incorporated hospital to buy the services of a licensed physician and resell them to its patrons. (*Stuart Circle Hospital Corporation* v. *Curry*, 173 Va. 136). Group Health Association could possibly come into Virginia under that exception without violating the law (but that exception refers to any hospital "now established in this State" and the word "now" was used in 1928). If they did build a hospital in Virginia, the Virginia doctors could probably boycott them with impunity.

In the course of its opinion the Court of Appeals said: "The people give the privilege of professional monopoly and the people may take it away." That dictum is more true of the medical profession than it is of the legal profession. The state legislature can authorize laymen to practice medicine, but a statute authorizing laymen to practice law would be held unconstitutional by most of the state courts. The Court's phrase "the privilege of professional monopoly" is an unfortunate one. The reason legislatures restrict the practice of medicine to licensed physicians is not for the purpose of conferring a favor on the doctors but for the purpose of protecting the public against quacks.

It is unlikely that this case will be reversed by the Supreme Court. The American Medical Association has been successful in raising the standards of medical education in this country through appeals to the legislatures. If the profession as a whole is unitedly opposed to the corporate practice of medicine it can probably succeed in persuading Congress and the state legislatures to make illegal such organizations as Group Health Association, Inc.

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ANEMIA IN OFFICE PRACTICE*

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There has been a tradition that county societies appreciate guest speakers who say that good practice in any branch or specialty requires only clinical experience and use of "the five senses". Laboratory procedures have thus been considered "high-brow" and "impractical". But to present the problem of anemia in general practice today, without reference to certain appropriate laboratory devices, would be useless romancing. At the same time I would insist that the real clinician, like the good sea-captain, remains master of his gadgets, is wise in the signs of old sea trails, and, if necessary, may "steer a course" without the aid of gadgets.

As a practitioner of internal medicine, with special interest in clinical hematology, I wish to present a few cases from my office records bearing on the problems of anemia. These problems should be viewed in the same light as those of fever. Both are symptoms and results of underlying disease. To treat either anemia or fever as a disease *per se*, although occasionally necessary, is generally a confession of diagnostic failure.

Case 1. Mrs. Philadelphia Registrite, 70 years of age, a peppery dowager-widow, has been under my care, afflicted with diabetes mellitus and a bad temper, for many years. Not long ago she complained more bitterly than usual of leg discomfort, sore mouth and weakness. My technician, requested to recheck the blood sugar, notes that the blood looks "thin". She thereupon proceeds beyond my order and, in addition to the "satisfactory" blood sugar report, she hands me a blood count which is far from normal—despite the fact that the routine count made last year was good. This one shows 1,500,000 reds, 4,000 whites, 40 per cent hemoglobin and a differential indicating macrocytosis and all the other cardinal features of pernicious anemia.

Here, then, the doctor is jolted with the fact that his regular service to Mrs. R. is faulty, and might have continued so, but for good luck and a good technician. Liver extract therapy follows and the old lady makes a remarkable comeback, to the dismay of relatives who were waiting and watching hopefully. This case illustrates the fact that even the experienced butcher should weigh his cuts. *Pernicious anemia may creep into the accustomed picture of elderly chronics with few or no signals. Accurate periodic blood counting is essential in good office practice.* The same remarks apply, and illustrative cases could be adduced, concerning leukemia and progressive anemia from silent hemorrhage, malignancy or aplasia.

Case II. Miss Ennui, a middle-aged bookkeeper, visits my establishment after trying many others. She says she suffers from "low blood pressure", "acidity" and has always been "anemic". She elaborates. Her "hemoglobin is rarely over 75 and is often only 70". Iron "shots" are said to be necessary to keep her "going". I question, examine and find nothing. Then my technician comes in with the blood report and whispers "she says she is anemic but this count is normal".

It takes an accurate, experienced technician to report confidently a normal hemoglobin in a patient who remarks while her finger is being pricked, "the last count was 60". The woods are full, however, of "low blood count" patients who have nothing wrong with their blood! The easy medical and lay habit of accepting "anemia" (like that of "low blood pressure" or "acidity") as an adequate explanation of the symptoms of the (maladjusted?) chronic complainer is all too common. This case illustrates many facts. In the first place, such a pseudoanemic medical customer is rarely satisfied with "honest" scales. She may insist they are "short weight" and may soon return to a "shot in the arm specialist" who continues to find her hemoglobin fluctuating precariously between 70.5 and 80% (usually with nothing but the "look and guess" Talquist scale as his guide!). She doesn't know, and the therapist doesn't admit, that under the most expert research technique there is a ± 5% variation in hemoglobin readings. In the average determination 10% variation is to be expected. And, sad to relate, a 20% error is not very unusual! Such cases as this, however, require the most careful study. For there are some persons with real, low grade, chronic anemia whose diagnostic and therapeutic problem is of the utmost importance. A meticulous hematological clinical examination must

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*Read before the Norfolk County Medical Society, at Norfolk, March 30, 1942.

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be carried out before one may have the temerity to say "your blood and blood forming organs are perfectly normal".

Of course, as a clinician, I recognize the fact that hematology, like surgery, gastroenterology and all the rest, must share the burden and responsibility of the chronic neurotic. As a clinician, therefore, one may condone iron shots and even the Talquist hemoglobinometer, as instruments of psychotherapy. But as a hematologist one knows that several hypodermics daily of the best available parenteral iron medicament hardly equal in hematinic value a few iron pills by mouth. One also knows that the usual Talquist hemoglobin reading is little, if any, better than a good look at the patient in broad daylight.

At this point it might be well to summarize the salient features of a good clinical hematological examination: (1) An intelligent history, based on knowledge of significant data; (2) Examination of skin—color, jaundice, rash, purpura, nodules; (3) Tongue mucosa and gums; (4) Lymphnodes, liver, and spleen; (5) Complete blood count, reticulocytes, platelets, fragility (sometimes); (6) Sometimes sternal marrow; (7) Usually gastric analysis; (8) Node biopsy when indicated; (9) Bilirubin and urobilin study; (10) Hemoglobin in stools and urine; (11) In appropriate cases bleeding and clotting time and prothrombin determination; (12) Sometimes x-ray of mediastinum and bones.

Case III. This is a selected case to indicate that office practice of clinical hematology is sometimes important and not *totally* dependent upon having a good technician.

A lad of 14 was carried into the office in the arms of his father. This boy had been just discharged from a neighboring hospital with a diagnosis of hopeless juvenile hepatic cirrhosis. He had literally been taken home to die. The family doctor, however, wasn't satisfied and referred him to me. The lad had become acutely ill with progressive obstructive jaundice, vomiting, abdominal pain, putty colored stools and fever of 3 weeks' duration. Examination disclosed deep jaundice, somnolence, purpura, enlarged spleen and a liver mass. The blood count was normal except for trifling anemia and slight leukocytosis. My reasoning then was as follows: Perhaps this is terminal juvenile cirrhosis but this is a rare disease and this boy had upper abdominal pain at the onset; hence, perhaps his jaundice and purpura are due to some more usual cause such as gall stone obstruction of the common duct with secondary liver degeneration. But why the splenomegaly? Then the idea came. The most common cause of gall stones in childhood is hemolytic ictero-anemia. Hemolytic anemia would account for splenomegaly and gall stones; and the accident of common duct obstruction would account for the rest. My technician was then recalled to carry out two additional office procedures: a recticulocyte count and a fragility test. At the end of an hour I had the thrilling answer: Reticulocytes 12 per cent; Fragility 0.650-0.450. Diagnosis: Hemolytic ictero-anemia presumably complicated by gall stone obstruction of the common duct. The rest of the story can be told briefly and happily. Hospitalization—transfusion and vitamin K—operation (Dr. I. S. Ravdin) with removal of stones from gall bladder and common duct—tube drainage of duct for a month—reoperation—splenectomy—cure! I had the pleasure of presenting this lad 6 months later to a medical gathering in Atlantic City. He had gained 20 pounds, grown an inch and was hematologically and clinically well.

Case IV. Mr. H., age 45, an automobile mechanic, was referred by his "boss" because of failing vision, weakness and indigestion. He had been unable to work at all for 6 months and had been "ailing" for 2 years. Anemia was first discovered in 1939 when the patient was hospitalized on account of otis media. After this he visited various doctors and was treated with iron "shots", liver, iron and copper pills, vitamins and transfusions. An ophthalmologist thought he had a brain tumor. Another doctor thought he had stomach ulcer.

Physical examination revealed pallor, smooth tongue, absent knee-jerks, and ophthalmologic appearance suggesting optic atrophy. Blood count showed 1.6 million red cells, 38 per cent hemoglobin, 3,500 leukocytes and marked macrocytosis. Gastric analysis showed complete achlorhydria.

It was hard for me to believe that a man could be treated in a large metropolis by a number of doctors without recognition of such obvious intimations of pernicious anemia. Careful questioning, however, indicated no sustained period of liver therapy; and no one had told him he had pernicious anemia. The other possibilities seemed to be aplastic anemia and aleukemic leukemia. Therefore I advised him to enter the hospital (for sternal marrow examination and x-ray studies). He refused. I then told him if he would take treatment for one week I could determine whether or not I could help him. He agreed to this trial period and 1 c.c. of reticulogen was administered every other day. On the fifth day his reticulocytes (previously 0.5 per cent) were 14 per cent and on the sixth day his reticulocytes reached a peak of 25 per cent. From then on this man's recovery was dramatic—as anyone might predict on the conclusive diagnosis of pernicous anemia. He now has 5 million red cells, 95 per cent hemoglobin, has gained 15 pounds and is back at full-time work.

One of the modern therapeutic sins is to treat cases of anemia with haphazard doses of a little iron, a little liver, perhaps copper and some vitamins in "shot gun" proprietaries. Some patients thus treated may be temporarily improved, but, through lack of knowledge and guidance, soon lapse. A poorly treated or partially treated case of

pernicious anemia is often hard to diagnose with certainty.

If one neglects the golden opportunity to observe the reticulocyte crisis which comes in 4 to 8 days after start of parenteral treatment in pernicious anemia in relapse, one has not been clinically adequate. Patients with pernicious anemia can be kept hematologically well with parenteral liver therapy. They need little or no iron, as a rule, and should not run the hazard of inadequate treatment with proprietary oral mixtures. On the other hand, cases of anemia not pernicious in type are rarely benefited by liver, and undoubtedly waste thousands of dollars each year on expensive proprietary combinations.

Thus it will be seen there is no easy "rule" for successful management of anemia. The best results are, as in every branch of medical endeavor, reserved to the best trained, most critically experienced clinicians who are armed with and understand the limitations and significance of accurate laboratory aids—whether self-performed or readily available.

In the minutes remaining I shall attempt to present the highlights of the more common anemias encountered in clinical practice.

I. *Anemias Resulting from Loss of Blood*: These are the so-called secondary anemias, with low color index and a "fighting" bone marrow. The commonest causes in order of frequency are (1) menorrhagia and metrorrhagia (fibroid and functional uterine bleeding and carcinoma); (2) gastrointestinal bleeding (peptic ulcer, ulcerative colitis, bleeding hemorroids, polypus, carcinoma of stomach and cecum, hepatic cirrhosis with bleeding varices and intestinal parasitism; (3) Urinary tract bleeding—nephritis, calculus, polypus, malignancy and pyelocystitis; (4) postoperative, post-partum and post-traumatic hemorrhage, and (5) hemorrhage secondary to hemorrhagic blood dyscrasias, such as purpura, chronic obstructive jaundice, leukemia or hemophilia.

In the anemias resulting solely from hemorrhage we find normal or low color index, plenty of platelets, polymorphonuclear leukocytes normal or increased and evidence of bone marrow regeneration. The numerous modern "hematological indices" are, in my opinion, no better than the simpler data just mentioned and constitute for the most part "works of supererogation".

The treatment of such anemias may be summarized as follows: stop the leak and remove the cause of the leak if possible, supply diet rich in blood building properties, transfuse if necessary, administer iron (especially ferrous salts*) and sometimes, in appropriate cases, certain hormones antuitrin S, thyroid, testosterone).

II. *Anemias Resulting from Disturbed Blood Formation*: In this important group the mechanisms of conditioned deficiency are pre-eminent in pernicious anemia, chlorotic (idiopathic hypochromic) anemia, sprue, pellagra, colitis, gastritis, polyposis, cirrhosis. Other anemias due to disturbed blood formation include aplastic anemia (primary and secondary to x-ray, benzol, etc.), myelophthisic anemia, from bone marrow metastases of malignancy, leukemias and myelosclerotic anemia. The concept of so-called achrestic anemia is, as as far as I am concerned, merely verbiage for macrocytic anemia of undetermined etiology.

Representative blood pictures in these anemias due to disturbed blood formation are: First, the macrocytic hyperchromic type—typified by pernicious anemia; Second, microcytic hypochromic anemia of chlorosis; Third, normocytic, leukopenic, thrombocytopenic anemia of aplastic states; and, Fourth, leukemic and leukemoid pictures of the malignant bone marrow diseases. The proper treatment depends upon diagnosis and varies all the way from liver extract for pernicious anemia, ferrous sulphate for chlorosis, and thyroid therapy for myxedema, to x-ray and radioactive phosphorus for leukemia.†

III. *Anemia Resulting from Excess Hemolysis*: (1) *Hemolytic Anemias Based on Hereditary Malformation of the Red Cell*—(a) Hemolitic icteroanemia; (b) Sickle-cell anemia; (c) Cooley's anemia. (2) *Hemolytic Anemias Due to Bacteria and Protozoa*—(a) Streptococcus septicemia, etc.; (b) Malaria. (3) *Hemolytic Anemias Due to Chemical Hemolysins*—(a) Phenylhydrazine; (b) benzol, etc. (4) *Hemolytic Anemia Due to Allergic and Anaphylactic Factors*—(a) Drug idiosyncrasy (sulfonamides, quinin, arsphenamine, etc.); (b) Incompatible blood transfusion, serum and snakebite; (c) Pregnancy (hematologically incom-

*Copper is not necessary in adult hematological practice.

†Arsenic is useful in chronic myelogenous leukemia but is of no value in the other varieties. Hydrochloric acid is sometimes helpful in pernicious anemia and chlorosis.

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patible); (d) Paroxsymal hemoglobinuria (coldluetic type); (e) Nocturnal paroxysmal hemoglobinuria; (f) Favism; (g) Ledere's anemia (?).

The hematological features common to the hemolytic anemias, in addition to anemia itself (which may be macrocytic, microcytic, normocytic or spherocytic) are: Splenomegaly, icterus, urobilinuria and bilirubinemia (but no bilirubinuria), reticulocytosis, hyperplastic bone marrow and in hemolytic ictero-anemia (of familial type) increased fragility of the red cells. In chronic cases there is a marked tendency to gall stone formation. The treatment of these hemolytic anemias depends upon the cause, and ranges all the way from splenectomy for familial icterus, sulfonamide for septicemia, and quinine for malaria, to removal of the hemolytic "antigen" if such is present. This may mean cessation of the very drugs just named, such as sulfonamide, quinin, and arsphenamine—removal of an environmental factor to which the patient is sensitized, such as benzol—or, in rare instances, termination of a "toxic" pregnancy. In all instances transfusion may be useful and even life-saving, but special care should be exercised in the selection of donors for these patients.

2016 *Delancey Street.*

THE PRACTICAL APPLICATION OF PREVENTIVE MEDICINE TO AN ARMY AT WAR, INCLUDING EMPHASIS ON VENEREAL DISEASE CONTROL

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Human material is the most precious equipment of an army. Its conservation with minimum waste is imperative, from both the strictly military and humane considerations.

A field army, originally composed of the best voluntary and drafted material available and subsequently decimated by disease, physical and mental, is useless except as a demonstration in pathology. History furnishes many examples of such forces. Conversely, a military force, large or small, in a state of high physical and mental efficiency possesses great striking power.

An army, then, is worth just as much as its units total, from the squad of a few men to the division, corps and army.

The *individual* units are human beings—soldiers, and upon their careful selection, training and general care depends the service which they can give in time of stress. The essential procedures in the development and care of a soldier for his job are important, and cannot be neglected if the defense forces are to profit. These activities properly come under the head of definite Preventive Medical measures, Personal Hygiene, Sanitation, and the Medical and Surgical treatment of the sick, wounded and accidentally injured.

Specific Preventive Medical measures include the proper physical examination of inducted men for army service, to exclude the physically and mentally unfit; vaccination against smallpox and typhoid of these enrolled; the administration of atabrine or quinine in malarial districts; prophylaxis against venereal disease following exposure; and other protective inoculations or vaccinations against specific infectious disease as special conditions might require, including yellow fever, cholera, plague, pneumonia, diphtheria and Rocky Mountain spotted fever. Tetanus toxoid administration, and inoculation against yellow fever are also now compulsory in the army.

Personal Hygiene properly includes all practical means to increase personal resistance against physical and mental disease. Instruction in this weapon of defense requires the efforts of medical officers and all officers on troop duty.

Venereal disease talks and demonstration of their effects by use of moving picture films are important. These talks should be tactful, not too lurid, and films minus falsely romantic atmosphere should be used.

Also, practical instruction in hygiene of the soldier includes emphasizing the value of outdoor exercise in work and play, under proper supervision, to avoid useless incapacitating injuries; the necessity for sleep, good food, daily warm-water-soap baths from head to foot as prevention against scabies

and louse infestation and skin infections; necessity for properly-fitting roomy foot-wear, with waterproofing of leather and daily change of medium heavy or heavy socks; the value of clean well ventilated uncrowded barracks and tents; the proper care of eating utensils after eating, by hot soap and water scrubs, rinsing in boiling water and air drying without the use of cloths; care of feet and toe nails, washing of hands before meals and after visiting latrines; the issue and wearing of properly fitted clothing in sufficient quantity and varied to suit the climate and weather conditions. Sufficient blankets should be issued for warm sleeping. Feet should be kept dry and warm with no constriction of legs and feet by too tightly laced leggings and shoes. Care of the feet prevents disabling "trench foot" caused by the action of cold, dampness, and constriction. Blisters are avoided by "limbering" new shoes with oil and hand-kneading them; also by well-fitting socks. Contact with prostitutes must be avoided; regular physical inspections of troops by medical officers are vital checks on the command. In addition, attention must be given to good hair cuts (not shaved heads!), clean scalps, regular dental treatments, properly regulated barber shops, the ration, field and camp equipment for cooking and storage of food, proper cooking, and physical condition of food handlers.

All these foregoing checks and procedures are important in personal hygiene. They can and are being done in the army. The soldier must be taught them if he is to remain on active duty instead of in a bed or on a chair.

A very special effort should be made by all Medical Officers and troop-unit Commanders to show the soldier how he himself can reduce spray droplet respiratory infection by avoiding close contact with people who have colds and coughs, and by covering his own mouth and nose with his handkerchief or other material when coughing or sneezing if he himself is infected.

So far as good *Mental Hygiene* is concerned, the more carefully general physical hygiene is practiced the better will be mental resistance against psychoneuroses and more serious forms of disturbance. Good discipline in a command implies development of subjective control (self-control) and a certain amount of objective control (control by others). The functions of command in the military service make this objective control of individuals and units necessary, in order to avoid confusion and to carry out definite missions.

Good discipline then, in a soldier, means the ability to control himself, a willingness to be controlled by others in the right way, co-ordination of individual effort with others to accomplish an end, co-operation in work and training, and prompt, intelligent obedience to military orders under all conditions.

Such an attitude is good for a soldier. Real army training possesses the elements of good mental hygiene and is not conducive to mental troubles, but the reverse. It teaches logical, sound, purposeful thinking on a basis of fact, instead of aimless mental butterflying or mental inertia.

By applying the simple principles of good discipline, thoroughly taught, the individual soldier will successfully meet the stress and strain of any type of duty in combat or in training.

As a matter of simple fact and demonstration in many U. S. Army combat divisions of the last Great War in France, the proper type of discipline developed was a powerful factor in practical Preventive Medicine, because of the fine spirit of obedience in the really self-controlled and objectively-controlled commands. Thousands of lives were conserved in such units through real courage properly directed in the place of reckless disobedience of orders and useless exposure and slaughter. In the present war the same results are being demonstrated in well trained and properly disciplined field force units.

In such fortunate commands, almost automatic functioning through good discipline becomes the saving factor in a tense situation.

And, in a final suggestion along this line, let it be emphasized that the obedient, self-respecting, manly soldier never for a moment loses his personality in the "Military Mass"—he contributes that personality to an effort intelligently, and coordinates and cooperates to a common end, no matter what the final result to himself. That attitude is the highest type of service in or out of the army.

To further a healthful attitude, let us be careful in this war army, to avoid the inexcusable breeding of mental contagion through suggestion, by using in the presence of trainees such terms as "shellshock", "soldier's heart", etc. You can turn

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a raw recruit into a mental or cardiac cripple in ten minutes by overemphasizing in front of him some high-sounding medical terms! All armies in training recognized this fact, in the other Great War—and usually after the mental contagion had already spread.

It has been asserted occasionally by some of those classed as experts, that army service in peace and war leads "to the threshold of insanity". Well, if a soldier develops a psychosis in the army, he would probably have developed it in the stress and strain of civil life, excluding very exceptional circumstances, and the discharges for functional and serious mental disability among young soldiers of short service simply indicates an insufficient period of observation to detect personality trends and defects before induction. And as we all know, the woods of civil life harbor a lot psychopaths.

Proper Sanitation in the soldier's life, means as good and beneficial an environment as the mission of his command will permit. The ideal outside of actual battle conditions is of course high. Appropriations often determine how far along the approach route to perfection we advance. And perfection has never been attained even with an abundance of money to help.

General surroundings, utilities, water supplies, drainage, anti-malarial work of all kinds, rodent extermination, mosquito and other insect control, dairy inspections, good pasteurized milk supply, civil population checks in cooperation with local authorities; alcoholic sales control and prostitution and venereal disease control; proper buildings or tents, heating, hot water supplies, sewage and waste disposal, water examinations and chlorination when necessary, bathing facilities, kitchen technique, refrigeration, fly control, food handlers' inspections, general food and meat storage and handling, veterinary inspections of dairies, forage, meats and animals; tracing of infectious diseases and their control, and general sanitary surveys—all these are or should be routine in and near camps and barracks for the soldiers protection. They are required by Army Regulations.

Thus, with care in Hygiene and Sanitation and Preventive Medical procedures, a definite check is obtained against such casualty producers as syphilis and gonorrhea, typhoid, paratyphoid, malaria, yellow fever, the deficiency diseases (pellagra, scurvy, beri-beri, alcoholic neuritis, etc.), dengue, tularemia, trichinosis, intestinal parasites, dysentery, diarrhea, cholera, plague, undulant fever, hemorrhagic jaundice, gas bacillus injection, diphtheria, tetanus, Rocky Mountain spotted fever, and serious functional mental disturbances.

What success the Army, Navy, Public Health Service, State and local health agencies have had in fighting these conditions, often against the opposition of ignorance, indifference and prejudice is a stimulating saga of accomplishment.

The final and most intimate procedure in the care of the soldier is the professional surgical and medical salvage of the individual when he is diseased, injured or wounded in battle. This service is the close-up combat that springs from the necessity of conserving the fighting strength of the command and the old urge for humane treatment to prevent invalidism, dependency and death. In the army in peace or war, care and skill in such treatment has a direct bearing on government finances in the expenditure of money for pensions, loss of time and services, etc.

Medicine and Surgery and all its organized activities, can be proud of its record in the last great war when 4,500,000 soldiers were treated in Army Hospitals, 151,000 casualties being evacuated and given surgical and medical treatment in the battle of the Meuse-Argonne, alone. We can also be proud of its present accomplishments, from Bataan and Corregidor to the home territory and all theatres of operations.

In this war program and army expansion there is a very definite fixed and mobile hospitalization and medical emergency aid program under way, this in addition to the already existing army facilities. Medical equipment, mobile and stationary, is on hand and being furnished to cover all units from the battalions to the divisions, corps and armies. Affiliated Hospital Units are being rapidly formed in many leading hospitals in the United States. Training hospital units are being formed. Personnel is being supplied and trained in special centers, schools and hospitals as rapidly as possible. From the Surgeon General's Office to the smallest medical detachment with troops in this country and overseas, the watch-word is speed and care in training of all grades in efficient emergency aid, evacuation, and definitive treatment of the sick and

injured. The medical expansion program from that of a small peace-time to a real army is great but it is being accomplished by the army with the help of the best agencies in our own profession and others.

An attempt has been made to show the direct bearing of Preventive Medicine, Hygiene, Sanitation and the practice of Surgery and Medicine on the selection, education, care and salvage of the soldier —and there are so many new men to be taught the necessary lessons of right living for right service to themselves and their country. Their spirit is splendid and they deserve the best help we can give. And they must learn to help and care for themselves.

To prevent, control or treat successfully respiratory, intestinal, insect-borne, deficiency diseases, general infectious diseases and functional and serious mental conditions is important. To prevent or care for surgical conditions, including accidental injuries and battle casualties is essential in the conservation of the training and fighting strength of a great or small command.

But the leading cause of loss of time from duty in the army is venereal disease—syphilis, gonorrhea, chancroid, and more rarely in the army, lympho-granuloma inguinale. It is this vicious combine of trouble-makers for the individual and the mass that we must all combat by prevention and careful treatment.

The army instituted an open campaign against venereal disease in 1909, and had made, long before, anti-venereal efforts sporadically and in spots.

George Washington, himself, in 1778 as the first Commander-in-Chief, emphasized the venereal scourge among his troops and urged steps to control the inroads of these infections, as they were a leading cause of disability and loss of duty time, then, as they are now 165 years later.

Their destructive prevalence in civil communities is known to you all, and they are being attacked in one of the greatest campaigns ever waged by civilian and Federal agencies against an age old enemy.

The army led in the all-out move against syphilis and gonorrhea in 1909 when instruction in sex hygiene and the nature and effects of venereal disease was begun. Voluntary medical prophylaxis was started. The annual venereal rate admittance then was approximately 175 per thousand.

In 1911 compulsory prophylaxis, monthly physical inspections by medical officers, and loss of pay while under treatment was instituted. The admittance rate then dropped to 165 per thousand per year. At last a start was really being made. And it was about time since venereal disease had taken a heavy toll in the Mexican War, in the Civil and Spanish Wars, and the waste was continuing.

In the Mexican War, 1846-48 period, the admittance rate averaged 162 per thousand per year, in the Civil War from 180 to 210, in the Spanish war 140 to 160.

During the last Great War, venereal rates in the A.E.F. in France for the period September 18, 1918 to June 4, 1919 was 40.46 per thousand per year. This special period included two months of combat only, and the post-Armistice "we want to go home" interval, a fair average for estimation purposes. For the entire period of troops in France from June 1917 on, the admission rate was 34 per thousand per year. The rate in the United States for the entire period of hostilities was approximately 117 per thousand per year.

In France, General Order No. 6, G.H.Q., A.E.F., July 2, 1917 was an anti-venereal order with clear intent, and due to General Pershing's backing of the Chief Surgeon A.E.F., by this order and others and their application, desirable results followed. Education of troops of all grades, medical prophylaxis, disciplinary action and segregation and early treatment followed, and this line of endeavor was continued and amplified. It was General Pershing's great desire to have soldiers of the A.E.F. return home a credit to themselves and their Country, and as free as possible from venereal infection.

With a total army strength of 182,000 in all stations, the Surgeon General's Report for the fiscal year 1939, covering vital statistics for the calendar year 1938, shows for that year 5,594 venereal cases—6% lower than in 1937, with 26% syphilis and 64% gonorrhea. In general, syphilis is to gonorrhea about 1 to 3, chancroid to gonorrhea about 1 to 4. There is an occasional lymphogranuloma inguinale. Many so-called "chancroids" often turn out to be primary syphilis. Total number of syphilis cases under treatment in January, 1938—4,176, and in January 1939—4,337. Cases under treatment including all types, were about three times the number of new cases. At the present time,

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the army venereal rate is approximately 40 per thousand per year.

Rates among white troops outside the continental United States vary from 79 per thousand per year in the Phillipines to 14 per thousand in the Territory of Hawaii. It is interesting to note that the rate of Filipino enlisted men is about 3 per thousand. Panama and Porto Rico also present real problems in venereal control with much higher rates than in the States.

According to Major General Charles Reynolds, M.C., Retired Surgeon General, the Army has records of venereal disease since 1819—probably the first and constantly the most reliable statistics of these diseases in existence. He says that because the Army discovered its venereal diseases, recorded them and published its records, it acquired the reputation of having a high incidence. He further states that during most of this time the general public had no more idea of the amount of venereal disease which it harbored than of its total of sin in general.

To-day, the specific, continuously applied means of combating these troop scourges in the army include:

1. Education of Officers and Enlisted men by Medical Officers in the nature and control of these infections, and by lectures formal and informal to large and small groups of troops by officers and non-commissioned officers serving with troops. Recruits are given intensive education soon after enrollment.
2. Disciplinary measures, including court-martial for failure to report an acquired infection.
3. Special venereal prophylactic stations and individual self-administered prophylaxis, and other protection.
4. Loss of pay under certain conditions while under treatment for venereal disease in a hospital.
5. Athletic and recreational activities to fill normal needs in every soldier's life. Libraries, moving pictures, etc.
6. Continued out-patient treatment and check after hospitalization.
7. Careful records of all cases, and a Syphilitic Register which follows the soldier in every change of station.
8. Careful treatment, during the infectious stage, in hospital. Restriction and observation after leaving hospital for as long as necessary.
9. Spinal fluid, blood Wassermann and Kahn, multiple urethral and prostatic secretion smears before considering patient free of active disease capable of being transmitted.
10. Reporting all venereal cases to local Civil Health Board authorities.
11. Cooperation with state and local health and welfare agencies in programs of repression of prostitution.

There is no reasonable basis for considering that army and civilian control and eradication of venereal disease cannot be progressively conducted. Army, U. S. Public Health Service and State Health Department records in recent years prove definite progress. The army rate has been reduced to one-fifth of its former level, by a continuously applied effort. Much more must be done by all coordinated agencies in the expanded war army, and in civil communities.

In this present effort against prostitution should suppression or regulation be used? Well, in my opinion, any single method or combination of methods really proved of value should be used. One thing is certain—that you can't really regulate anything effectively that cannot be definitely controlled. It is better to get rid of a menace by putting it out of bounds and out of reach than by making it easily accessible.

Major General Charles Reynolds, Ret., says this in the "Military Surgeon" December 1940:

> "Prostitution must be recognized as a Fifth Column in our midst to be dealt with accordingly. Without restraint, the forces of prostitution can decimate a military command. These forces strike the moment mobilization and concentration begin, and hang on the flanks of the forces as they move from one theatre of operation to another. Modern ways of life have changed the tactics of prostitution to keep it current with the change of method of war. As Colonel Dunham, Medical Corps, U. S. Army, puts it, 'Prostitution has been motorized while the Army has been mechanized. The operation of a motorized and mechanized force cover a wide territory calling for a more universal cooperation by local health boards, police officers and military commanders.' "

Colonel Dunham in Preventive Military Medicine has this to say of the "regulation" method of controlling prostitutes: "Regulation of prostitution serves to promote rather than to limit the spread of venereal disease, so far as troops are concerned. This method of control augments the accessibility of the prostitute and facilitates the practice of prostitution. The medical inspection of prostitutes as practiced under the conditions which surround prostitution is of no value in detecting or eliminating the infected prostitute." One has only to personally check the "controlled areas" in tropical countries and in some of our states to realize the truth of the quoted statement.

On the other hand, attempted suppression of prostitution implies Health Department and police cooperation for law enforcement, restriction by preventing houses of prostitution and catching those on wheels. Prostitution can thus be made difficult and decidedly unattractive, though not entirely eliminated in any given locality.

Just what practical cooperative steps has the army recently taken to coordinate its own antivenereal work with that of the U. S. Public Health, State Health Departments and private welfare organizations? And what have these organizations done and what can they further do to increase their already enthusiastically given services?

In letters from the War Department dated September and December 16, 1940 to the Commanding Generals of all Corps Areas, Department Commanders, and Armies, their close cooperation is directed with the U. S. Public Health Service, the Surgeon Generals of the Army and Navy, State Health Authorities, and the American Social Hygiene Society and any other recognized private welfare agencies, in order to prevent the spread of Venereal disease among troops as well as to protect the civil population.

In connection with this program an Officer of the U.S.P.H. Service was authorized to be detailed to each Corps Area Headquarters.

The letters of December 16, 1940, referred to above, directed compliance with a plan drawn up at a conference of the Surgeon Generals of the Army, Navy and U. S. Public Health Service, approved by the Secretaries of War and Navy and Administrator of the Federal Security Agency. So you see there are plenty of people interested. It's our little job, working together, to make it work.

The provisions of this directed plan cover:

1. Early diagnosis and treatment of civilians by the local health departments.
2. Early diagnosis and treatment of Army and Navy patients infected with venereal disease.
3. Reporting by Army and Navy Medical Officers of venereal cases to state and local health authorities.
4. Report of contacts of enlisted men with infected civilians to Medical Officers of the Army and Navy, the local or state health authorities.
5. Forcible isolation of recalcitrant infected persons with Gonorrhea or Syphilis during period of communicability. Health Officers and local police officials concerned in this detention of civilians.
6. Decrease of opportunity for contact with infected persons—local police to be responsible for *repression* of commercialized and clandestine prostitution. Local Health Departments, the State Health Department, the U.S.P.H.S., and the Army and Navy to cooperate with local authorities in *repressing* prostitution.
7. An aggressive program of education both among enlisted personnel and civilian population concerning the nature and dangers of infection, methods of prevention and steps to be taken if a person suspects he is infected.
8. The local police, Health Authorities, State Health Department., U.S.P.H.S., Army and Navy desire the assistance of representatives of the American Social Hygiene Association or affiliated social hygiene societies or other voluntary welfare organizations or groups in developing and stimulating public support for the above measures.

The necessity for control of the use of alcoholic beverages on military reservations and in their vicinity is also stressed by the War Department letter of December 16, 1940. Irresponsibility of action due to the use of liquor and exposure to venereal disease go hand in hand.

With the practical, enthusiastic support of pub-

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lic and private Welfare Agencies, the Army will use every legitimate weapon to meet the individual and mass attack of an enemy forever on the march against soldier and civilian alike.

PNEUMOTHORAX IN AMBULATORY PATIENTS*

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and
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In 1935 Cole and Harper reported our experience in the treatment of 68 patients who were given pneumothorax and either remained, or soon thereafter, became ambulatory. Concerning this treatment we stated that these patients were hospitalized in a general hospital for a short period of time for the institution of pneumothorax. When a successful pneumothorax was established, patients were permitted to return home and report to the office for refills. The usual period of hospitalization was five to ten days, sometimes longer. These 68 patients reported on previously are included in this follow-up of 234 patients. At the time of the previous paper 9 of the 68 patients were dead, and since the publication of this paper six years ago, 5 additional of these patients have died. Since the behavior of this group of patients is very similar to the entire group no further effort will be made to separate them.

In this paper we wish to report on our experience in the treatment of 234 patients in private practice who were considered suitable for, and in whom pneumothorax was attempted. In most of the patients pneumothorax has been instituted in a general hospital and a few in a sanatorium. In a few patients pneumothorax was either unsuccessful or inadequate, and in addition continued bed rest was utilized, but otherwise these patients have become ambulatory immediately or soon after pneumothorax was established. There were a number of patients requiring additional or supplementary collapse measures who were again ambulatory soon after the employment of these measures. For example, on occasion we have utilized apical thoracoplasty in conjunction with pneumothorax for cavity closure and the patient has become ambulatory within two or three weeks following the operation. So far as we have been able to determine these patients have done as well as they could have done with additional prolonged bed rest.

Our experience with a larger group of sanatorium patients convinces us that ambulatory treatment is by no means suitable for all patients with tuberculosis, but we do believe that by and large there is a tendency to over-hospitalize the tuberculous and that available beds are often not used to the best advantage for the greater number. This practice is now being applied extensively in Virginia so that there are now some 500 indigent pneumothorax patients under treatment by private physicians at home and not in sanatoria, thus releasing beds which are needed for other patients.

Of the 234 private patients for whom pneumothorax was thought suitable and was, therefore, attempted, there were 198 for whom collapse by pneumothorax was sufficiently adequate to justify its continuance. In the remaining 36 patients collapse by pneumothorax was either impossible or so inadequate that it was promptly abandoned and substitute therapy was utilized. In retrospect we doubt that we have abandoned pneumothorax too soon in any of these patients, although in a few instances it was persisted in too long after some other procedure should have been substituted.

DEATHS: Of the 234 patients 39 are dead. Of these, 31 died of tuberculosis and 8 from causes unrelated to tuberculosis after their disease had healed. In 21, or more than one-half of the total deaths, tuberculosis was never controlled either because of a tuberculous pneumonia with overwhelming infection, or because of advanced disease which failed to respond to collapse therapy plus the complete rest which was therefore mandatory. These patients are included with our ambulatory cases because they were considered for ambulatory treatment and despite the fact that they never became ambulatory. In only 11 patients where tuberculosis was once controlled and the patient became ambu-

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latory has relapse occurred and death resulted from tuberculosis. Of the 8 who died of causes unrelated to tuberculosis, 4 died of carcinoma, 1 from coronary thrombosis, 1 from cerebral hemorrhage, 1 from gun shot wound, and 1 from sub-phrenic abscess. From this experience we are led to hope that few of our present ambulatory patients, approximately 75, still taking pneumothorax will die primarily of tuberculosis. In our experience the ultimate recovery of patients whose tuberculosis is once controlled by pneumothorax is not necessarily governed by surplus or prolonged rest. We consider adequate rest a necessity, and surplus rest a luxury, for, in our experience, patients who are so situated that they can take abundant prolonged rest have done no better either temporarily or permanently than similar patients for whom earning a livelihood was a necessity. In this latter group we have had no laborers and but few patients whose work required excessively long hours, so by resting when not working they have been able to hold their positions without great difficulty.

Of the 195 living patients, 160 are either working or are able to work full time, and 19 part-time. Twelve patients are unable to do any work and of these 6 are relapsing. Concerning 4 patients, we have no recent information and these are considered lost.

In 36 patients pneumothorax was unsuccessful and, therefore, promptly abandoned. Of these, 17 are dead. Of the 36 patients, 27 were given some other type of collapse. Ten phrenic nerve operations, and 22 thoracoplasties were done. Eleven of this group are among the dead. Nine patients had no other collapse measure, and of these 6 are dead, and 3 are relapsing or are unable to work. The high mortality in this group may be accounted for by the inability to control the tuberculosis. Few of the deaths resulted from relapses. Also, only a few of this group became well enough to become ambulatory.

PATIENTS REQUIRING ADDITIONAL MEASURES TO AUGMENT COLLAPSE: Fifty-two patients in whom pneumothorax was continued, required additional measures to augment collapse. Of these, 14 had pneumonolysis, 15 phrenic nerve operations, 22 contralateral pneumothorax, and 9 thoracoplasty. As will be noted, some of these patients required more than one of these procedures. Of this group of patients, 7 are dead, 3 are relapsing and are expected to die of tuberculosis, 6 are improving though not working and recovery is anticipated. Thirty-six are working or the equivalent. Pneumothorax alone was inadequate in this group of patients. Interestingly, in these patients the tuberculosis could be controlled by collapse and, therefore, they could soon regain an ambulatory status following any of the surgical measures utilized, even thoracoplasty.

In 146 patients unilateral pneumothorax was maintained without the aid of any supplementary or contralateral measure. Of these, 15 are dead and 4 have been lost. Of the 127 patients known to be living, 120 are able to work full time and 7 part-time.

PLEURAL FLUIDS: Eighty patients had pleural fluid requiring aspiration and the fluid was studied. Fifty-eight of the fluids were cultured for tubercle bacilli, and 49 of these showed an organism culturally and morphologically identical with tubercle bacilli. Nine were repeatedly negative on culture. Prior to 1933 fluids were not cultured. Fluids from 22 patients were not cultured, but were injected into guinea pigs. Of these, 7 were positive and 15 were negative. Since 1933 we have routinely cultured all fluids, and have discontinued routine guinea pig inoculations, but have used this procedure for study of special cases and also for determining the pathogenicity of some of the cultures.

EMPYEMA: Twenty-four patients in whom pneumothorax was maintained developed empyema. Seven of these are dead. Of the 7 who died, the presence of empyema was definitely a contributing factor in the death of 3. The remaining 4 died of causes unrelated to the empyema, and in 3 of these the empyema had long since cleared. Two patients had cloudy fluid at the time of death. One of these died as the result of spontaneous rupture of the contralateral lung and the other from generalized miliary tuberculosis following removal of a tuberculous epididymis. Also, 2 patients in whom pneumothorax was unsuccessful developed empyema. One of these died of a progression of tuberculosis and the other is still living and the empyema has healed, although he has an apical cavity which we have been unable to close by thoracoplasty. Of 17 patients in whom pneumothorax was successful, all of whom are living and the empyema healed, 16 are able to work. Five of these patients still have pneumothorax and 3 of these occasionally have a recurrence of clear fluid. Two patients have re-

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quired thoracoplasty to obliterate the pleural space caused by the unre-expanded lung. In 9 of these patients the lung has re-expanded without difficulty and the patients have remained well.

DURATION OF EMPYEMA IN LIVING PATIENTS: In 8 patients empyema cleared in less than a year. In 7 other patients empyema persisted more than a year, but less than two years. In 2 patients the empyema was treated for two years before it cleared and 1 patient required more than three years of aspiration and irrigation before the fluid became clear, and eventually disappeared. In all of these patients empyema was treated as a complication of pneumothorax, and the lung was not permitted to re-expand until we were convinced that the pulmonary lesion had healed. In retrospect it is obvious that a prolonged tedious period of aspiration and irrigation could have been obviated by the application of oleothorax or thoracoplasty, but we feel that our end result is better since the re-expanded lung represents a salvage and none of these have relapsed. None of these patients has shown sufficient evidence of bronchopleural fistula for this condition to have been diagnosed and none has required surgical drainage.

PLEURAL EFFUSION PRIOR TO THE INDUCTION OF PNEUMOTHORAX: Eighteen patients had pleural effusion prior to the institution of pneumothorax. Of these 10 had more or less advanced pulmonary tuberculosis and 8 showed little or no lung involvement. The group showing pulmonary tuberculosis were treated with pneumothorax until the lung had healed. In the group with no demonstrable lung involvement the fluid was aspirated and replaced with air and this pneumothorax maintained until we were reasonably certain there was no demonstrable lung pathology. Four of these patients have continued well four to five years, and 4 patients from five to fifteen years, and so far none has subsequently developed pulmonary lesions. The 10 patients showing lung pathology were treated as other patients with similar pathology and the fluid as an effusion complicating pneumothorax.

TUBERCULOUS TRACHEOBRONCHITIS: Of 7 patients having tuberculous tracheobronchitis as a complication, 3 are dead and 2 are relapsing. The other 2 are apparently doing well. Their ulcerations are healed and sputum has been consistently negative for tubercle bacilli. We look upon this as a dreaded complication and in our small experience is not the result of pneumothorax since 5 of these 7 patients showed evidence of tracheobronchitis prior to the institution of pneumothorax. In the 2 patients who have recovered from this complication we feel that pneumothorax has made recovery possible by controlling the lung lesion. In 1 of these, bilateral pneumothorax was necessary.

PREGNANCY: Fourteen pneumothorax patients became pregnant while under treatment. Pregnancy was approved in 6 of these, and it so happens that all of these were carried to term and delivered normal babies. None of these 6 was made worse by pregnancy. The first of these was twelve years ago. This patient's lung has been re-expanded for ten years, and the patient has remained well. So far as we can determine there is no evidence of infection in these six children.

Against advice 8 patients became pregnant, and 7 were made worse by pregnancy. Four of these are dead. Not one of the 4 became stabilized following the relapse incident to pregnancy. Despite our good fortune with these 6 patients in whom pregnancy was permitted, we feel that pregnancy is a real hazard for the tuberculous patient. In no instance has a second pregnancy been permitted.

RECURRENCE OF POSITIVE SPUTUM AFTER PNEUMOTHORAX: In 23 patients tubercle bacilli recurred in the sputum after conversion by pneumothorax. Development of a lesion in the contralateral lung accounted for 15 of these. Five resulted from a recurring tracheobronchitis which had temporarily subsided. Three resulted from re-opening of a cavity in the collapsed lung. In 10 of these 23 patients sputum was again converted and has remained negative as the result of additional collapse measures. Of the 13 patients whose sputum we could not re-convert, 9 are dead.

Subsequent to collapse we were able to culture an organism having the morphological and cultural characteristics of tubercle bacilli but non-pathogenic to guinea pig from the sputum of 13 patients whose sputum was negative by all other methods of examination. We have theorized that these are tubercle bacilli so near killed as to become avirulent, but we have no proof of this. At any rate we have taken this as a warning signal and have watched these patients even more closely than usual. At present we consider this finding alone sufficient reason to continue pneumothorax until subsequent repeated cultures have been negative. Interestingly

enough, in 5 of these patients the collapsed lung was being re-expanded when this phenomenon occurred. We consider this an additional reason for controlled re-expansion. We have made no other change in any of these patients because of this finding.

Thirty-five patients were collapsed without demonstrating tubercle bacilli in the sputum. In 8 of these bacilli were subsequently recovered from pleural fluid. These include emergencies such as hemorrhage and massive pleurisy with effusion.

PNEUMONIC TUBERCULOSIS: Seventeen patients were collapsed because of an extensive tuberculous pneumonia. Six of these are dead. Eleven have made good recovery and in 3 pneumothorax is being continued.

DISCONTINUANCE OF PNEUMOTHORAX AND RE-EXPANSION OF THE LUNG: Pneumothorax has been purposely discontinued in 83 patients and the lung has re-expanded. Three of these developed an obliterative pleuritis after lung had been collapsed sufficiently long for the tuberculosis to heal and re-expansion considered to be permissible. No effort was made to maintain collapse in these patients. In other instances obliterative pleuritis has developed early, but we have been able to control this with positive pressure. In this group of 83 patients, 4 are dead and 4 have been lost. Of the 4 who died, 2 died of tuberculosis, 1 of an automobile accident and 1 of a gun shot wound. Of the 4 who have been lost, all were living and apparently well when last heard from three to five years ago. Of the 75 re-expanded cases known to be living, 73 are able to do some work, and the majority are working full time. One patient has tuberculous tracheobronchitis, and is expected to die. Another who quit treatment against advice developed tuberculosis in the contralateral lung ten years following re-expansion, during which time she was twice married and once pregnant.

CONDITION OF LUNG FOLLOWING RE-EXPANSION: Eighteen patients whose lungs have re-expanded have more or less atelectasis, fibrosis and mediastinal displacement. Of this number, 4 patients have had phrenic operations to relieve symptoms caused by diaphragmatic adhesions. Two have had thoracoplasties because of unre-expandable lung. Only 3 patients of the entire group now have symptoms as a result of atelectasis, torsion or mediastinal displacement. In none of these are symptoms sufficiently severe to necessitate surgery.

Eventual lung re-expansion is anticipated throughout pneumothorax therapy in our patients so we endeavor to avoid lung fixation from protracted fluid or continued excessive collapse of the undiseased portion of the lung. Also, if adhesions are not interfering with selective collapse, we refrain from cutting these since we find them helpful in eventual re-expansion. Pneumothorax is discontinued slowly and gradually. We endeavor to prevent pleural symphysis until maximum lung re-expansion is obtained. This method often requires one to two years for complete re-expansion, but we feel that so long as the lung can be coaxed to re-expand, pneumothorax should not be discontinued abruptly.

The development of effusion during re-expansion is frequent, and we attribute its occurrence to permitting the negative pressure to become excessive, and the inability of the lung to rapidly re-expand. We endeavor to avoid this by giving small refills of air at fairly frequent intervals, and thereby endeavor to keep the pull on the lung as constant as possible. On rare occasions we have had an old cavity to re-open when the lung was almost re-expanded, and have then found the pneumothorax handy.

We have had two patients develop a hemorrhagic effusion following re-expansion. We thought that we were dealing with a hemorrhagic pleuritis until one of these died as the result of an accident, and at autopsy the lung was found to be completely healed and the pleura, although thickened, was smooth. The bleeding was the result of a severed adhesion.

DISCUSSION

DR. FRANK B. STAFFORD, Charlottesville: Dr. Cole has covered this subject so fully that it is hardly worth while for me to say very much. There are a few comments, however, that I want to make on his excellent paper.

Dr. Cole's statistical tables are very instructive, and also are excellent. He reports 234 patients treated with pneumothorax, with a successful or satisfactory therapeutic collapse in 198 of the cases. That is as good as any one of us can do, and better than most of us can do. We feel that we are lucky if we can satisfactorily collapse sixty per cent of the cases of pneumothorax that we attempt.

In treating pulmonary tuberculosis today, it is almost considered neglect of the patient if we fail to give pneumothorax to those cases that are suitable for it. Unfortunately, not all of them are suitable for pneumothorax, but those who are suitable, and to whom it can be given, should have it. To give an illustration, of the patients that come to Blue Ridge Sanatorium, we attempt some

form of collapse on about seventy per cent of the cases that have definite tuberculosis. We receive some patients in whom the diagnosis is not definite and do not need collapse. But in about seven out of ten cases pneumothorax is tried, and with the aid of intrapleural pneumonolysis, we succeed in collapsing about fifty-five per cent of the cases successfully.

Dr. Cole pointed out the difference between a patient with adequate collapse and one with inadequate collapse. Certainly it is folly to continue with a patient in whom you are not getting beneficial results. Abandon the procedure in favor of something else.

There are three objects to be attained in treating pulmonary tuberculosis. The first is to convert the sputum from positive to negative. The second factor involved is to get the diseased lung to heal as rapidly as possible. The third is to get the patient free of toxicity. When that is accomplished the symptoms will subside. Those three objectives are certainly reached more quickly through collapse therapy than by letting the patient go to bed and rest out his disease, as we formerly did. So, in all cases that come to the Sanatorium that are suitable we try pneumothorax. If the pneumothorax is not satisfactory we abandon it and try something else.

Dr. Cole referred to pleural effusion. He probably has a lower rate of pleural effusion as a complication of pneumothorax than most institutions. We run an average of 150 patients that are under collapse therapy (pneumothorax). We find about 50 to 60 per cent of those cases have pleural effusion after being under pneumothorax for as long as twelve months. There are perhaps more of these patients who have pleural effusions, but we do not recognize it. Pleural effusion as referred to here implies that which can be seen under the fluoroscope.

In reference to simple pleural effusions, we are still perhaps getting too many patients coming to the Sanatorium who have previously had fluid formation, mostly tuberculous in origin, from whom the fluid has been removed before they came in and was not replaced with air. We do not know, of course, the cause for all pleural effusions in tuberculosis, but in most cases we have a collection of tubercles on the pleurae and the irritation coming from that source may cause the effusion. If the fluid is removed and no air introduced, the inflamed pleural surfaces will come together, stick and pleural adhesions will be the result. So we believe that a certain amount of air should be introduced to keep those surfaces apart. Then, as the inflamed surfaces heal and the air is absorbed, you have more nearly normal pleural membranes coming together.

We inferred from Dr. Cole's paper that he had about 11 of these 198 pneumothorax cases that had tuberculous empyema. That is very, very low. One is lucky, usually, to hold the incidence of empyema down to 10 or 12 per cent. We run about 12 per cent with our cases. When we say "empyema", do not confuse tuberculous empyema with a mixed or pyogenic form of empyema.

The treatment of tuberculosis has been essentially revolutionized recently with this collapse-therapy program. We feel that, everything else being equal, all of those cases who have tuberculosis, particularly if they have unilateral lesions (though we do give it to bilateral cases), especially the classical cases with bacilli in the sputum, should have an attempt made at pneumothorax.

One thing which should be emphasized at this point is: Try these people with tuberculosis on pneumothorax, and if you cannot collapse them in that way, try something else that will give definite results rather than let them remain in a sanatorium, or in a general hospital, or at home and lie in bed for weeks or months with very, very slow recovery, and possibly at the end of two or three years (or more than that in some instances) the results are perhaps not as good as they would have been under collapse therapy. The patient will still have the disease, and maybe in an active form, and even though they may be asymptomatic, they will relapse when they are gotten up and out of bed and subjected to much physical strain.

DR. FRANK S. JOHNS, Richmond: I should like to make a few remarks in regard to the surgical aspect of this important subject. First of all, I wish to commend Dr. Cole for his enterprise in treating these cases. I am satisfied that tuberculosis is one disease that really needs energetic treatment. "It is not a lazy man's disease." If these patients are allowed to drift along on a purely medical regime, without some other aid, they will get complications involving more surgical problems than necessary. But if they are handled in an enterprising, energetic way from the beginning, we will get the results Dr. Cole has shown us this morning.

Dr. Cole's very low percentage of complications certainly deserves comment. I refer to the small number of empyemas he has had in this series. Surely it is not a hit-or-miss proposition when he cites 198 cases with so few empyemas; it is entirely the way these patients are treated. And I think the large majority are medical problems.

This year, before the American Association for Thoracic Surgery there was quite a discussion of empyema from the surgical standpoint. We rarely see a tuberculous empyema among Dr. Cole's patients who needs surgical attention. I believe this is due to the way these cases are handled by Dr. Cole.

Dr. Cole touched on pregnancy in tuberculosis patients. I have had a striking illustration of the subject in our office force. One of our secretaries developed tuberculosis. The first time she had a little spotting, Dr. Cole saw her and rayed her, and she had a definite cavity. We put her in our own hospital, and he gave her pneumothorax immediately. She returned to work in thirty days and went right on and in about two years was married. In due time, when Dr. Cole thought it wise, she became pregnant and went through successfully. I think if these cases can be very carefully supervised, they may be allowed to go on through pregnancy; otherwise, they should be aborted immediately.

A report from Michigan gave a most interesting re-

view of their experience. More than ten years ago they showed that they were using collapse therapy in some form in 77 per cent of their cases. I believe that these figures are too low now. If tubercular patients have cavities, they must be closed. If you leave the cavities open, many of these patients will die and the remaining will be invalids. This is one condition that needs energetic treatment.

DR. COLE, closing the discussion: I do not wish to prolong this, Mr. Chairman, but I do want to thank the gentlemen for their discussion.

I wish to mention one thing that was not brought out, bilateral collapse. We have had a number of patients with bilateral pneumothorax. They are more difficult to handle, but many of them will get along well.

Again I thank you for the discussion.

VAGINAL SMEARS AS AN AID TO THERAPY IN GYNECOLOGY*

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The method of study of the sexual cycle in animals by means of vaginal smears was introduced by Stockard and Papanicolaou in 1917. In 1933, Papanicolaou published his classic monograph, "The Sexual Cycle in the Human Female as Revealed by Vaginal Smears". Continuing to add to our knowledge of this subject, Papanicolaou published the following articles: "The Use of Vaginal Smears as a Method of Evaluating the Action of Ovarian Follicular Hormones"; "Action of Gonadotropic Hormones in Amenorrhea as Evaluated by Vaginal Smears"; "Suppressive Action of Testosterone Propionate in Menstruation and its effect on Vaginal Smears"; "The Diagnostic Value of Vaginal Smears in Carcinoma of the Uterus".

Interest in the subject has been greatly stimulated and articles based on vaginal smear studies have appeared from Shorr, Fletcher, Geist and Salmon, Ucko, Rubenstein, Bennett, Schneider. Rubenstein's article most clearly supplements Papanicolaou's original monograph and should be read by all interested in the subject. So often does one read in scientific papers the expression, "The response as indicated by vaginal smears", that I feel no apology is necessary for bringing this timely subject again to your attention. To the skeptical, it should be pointed out that Papanicolaou's original work came from the Department of Anatomy, Cornell University Medical College and the Woman's Hospital, New York City, and Rubenstein's researches, aided by a grant from the Rockefeller Foundation, were carried out at the Brush Foundation and the Gynecological Out-Patient Department of Western Reserve University School of Medicine, Cleveland, Ohio. We welcome one more method of scientifically diagnosing and treating functional disorders in gynecology.

The vaginal smear technique is based on the fact that the vaginal secretion—consisting of exfoliated epithelial cells from the vaginal wall—is a true index of the state of the vaginal mucosa and that the vaginal mucosa undergoes constant changes under the influence of ovarian hormone activity. Scientific data has been forthcoming to prove this conception. Geist and Salmon, by means of vaginal biopsies, found that vaginal smears accurately reflected the degree of regression and regeneration of the vaginal mucosa. Rubenstein and Duncan have demonstrated a close correlation between the human vaginal smear changes and the urinary estrogen assay.

METHOD OF TAKING THE VAGINAL SMEARS

The most commonly employed method of taking vaginal smears is that of Papanicolaou. A blunt tipped glass pipette with a good rubber bulb on the other end is introduced into the posterior fornix of the vagina, and the vaginal fluid with its cellular content is aspirated into the tip of the pipette. While aspirating, the tip of the pipette is moved from one side of the fornix to the other so that all parts are contacted. The vaginal material is spread upon one end of the surface of a clean microscopic slide. The slides are plunged into a solution of equal parts of ninety-five per cent alcohol and ether at once, before drying takes place, which causes loss of cellular detail and staining properties. The fixation does not require more than a few minutes, but smears may be kept in the alcohol-ether solution as long as a week. Rubenstein obtains his smears by removing vaginal secretion of the posterior fornix with a wire loop. Bennett simply inserts a moistened cotton

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tipped applicator well into the vagina, and swabs the posterior and lateral walls. Bennett does not fix his slides, claiming greater detail thereby.

For practical purposes, it is satisfactory to have the patient make her own slides. We order for each patient a special bulb-capped glass pipette or a number of cotton tipped swabs, a box of numbered slides, and a jar containing equal parts of ninety-five per cent alcohol and ether. The subjects are instructed to prepare their own smears and to drop the slides immediately into the alcohol-ether mixture where they are kept until brought to the office. Wire paper clips or dental floss may be used to keep the slides apart. Smears are made daily, every two or three days, or once a week, depending on the problems at hand. No douches are allowed before taking the smears. Any chronic vaginal infection must be irradicated before relying on the vaginal smear method.

STAINING OF THE SMEARS

The technique of staining the smears usually employed is that of Papanicolaou, using haematoxylin, eosin and waterblue. As the details of this technique are not always at hand, we repeat the method here.

Slides are first stained with Ehrlich's haematoxylin for about five minutes, then carried into running water for at least a quarter of an hour. After this they are stained with a 0.5 per cent eosin for about three to four minutes, rinsed well in water, and finally stained for one minute in a 0.5 per cent solution of waterblue. Following this they are rinsed well in water and then carried through fifty per cent, seventy per cent, eighty per cent, and ninety-five per cent, and absolute alcohol into xylol and mounted in Canada balsam. The stain is permanent and does not fade easily.

With this stain, the cornified cells, which are almost constantly present in the vagina, take an intense red (eosin) color and are sharply differentiated. Cells derived from the deeper vaginal layers which are free from cornification are stained strongly blue. Partly cornified cells show various shades of purple. Superficial secretory cells, containing mucus, display characteristic bluish purple tones.

Numerous other staining techniques have been recently described purporting to bring out greater detail and to simplify the procedure. Reference is made to the methods of Shorr, Geist and Salmon, and Fletcher. Bennett uses the gram stain, gentian violet, gram iodine, carbol fuchsin.

Of the various staining methods, the simplest is that of Geist and Salmon. The vaginal secretion is diluted with a little normal saline, spread on a glass slide, allowed to dry in the air and then stained for one minute with fuchsin.

We have found most satisfactory and have been using a modification of Papanicolaou's method described by Ucko which is as follows:

Methylated spirit is poured on the smear and allowed to remain for two minutes. It is then removed and the film is stained for twenty minutes with a diluted Giemsa solution, prepared by adding ten drops of the standard Giemsa solution to five cc. of distilled water. The slide is then washed with distilled water, and allowed to dry. A drop of Canada balsam is put on and a cover glass applied. This method has the advantage over the fuchsin and grams stain, for it produces the color variations important for the diagnosis of cornification. Entirely cornified vaginal epithelium cells are stained red, partly cornified cells violet, and non-cornified cells blue.

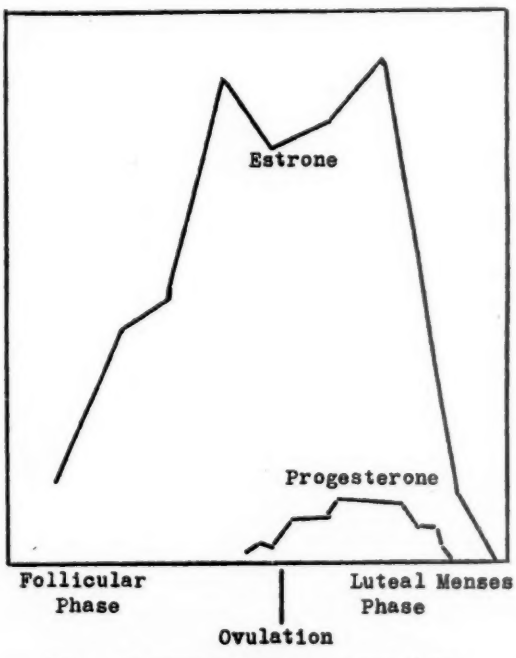

Fig. 1.—The estrone and progesterone curve of the normal menstrual cycle.

THE GONADAL CYCLE

The sequence of maturation of follicles, ovulation and corpus lutein formation is known to all. The fluctuations of estrone and progesterone are pictured in the graph (Fig. 1) modified from the Mayo Clinic. Note that the height of estrone production is in the luteal phase. Note the beginning of progesterone production just before ovulation. The progesterone curve was obtained from estimations of pregnandiol excretion.

THE VAGINAL CYCLE

As already intimated, the vaginal smear method is based on the fact that just as there is a uterine cycle, so also is there a vaginal cycle, both the result of cyclical activity of the ovary. According to Rubenstein, the gonadal and vaginal cycle may be correlated as follows: The gonadal and vaginal cycles begin with or after menstruation with the singling out of one of the immature follicles to undergo a process of growth and maturation. As the follicle grows, it elaborates the hormone, estrone, which stimulates proliferation in the uterus and vagina. As the follicle matures, some of its lining cells change their function and form lutein cells, even before ovulation.

The pre-ovulative formation of lutein cells starts the production of progesterone and the secretory phase in the uterine mucosa and the vagina. After ovulation, the corpus luteum filled with lutein cells continues the production of both estrone and progesterone. Since estrone causes proliferation and progesterone secretion of the uterine and vaginal mucosa, proliferation and secretion go hand in hand in this phase. In the vagina progesterone effect not only causes secretion but also marked increase in desquamation. A few days before menstruation, the corpus luteum begins to regress, providing that pregnancy does not occur. There is a rapid progressive diminution in production of estrone and progesterone, the uterine mucosa exfoliates with menstruation, the vaginal mucosa, progressively less stimulated, regresses.

The vaginal cycle thus consists of proliferation during the follicular phase, proliferation, secretion, desquamation, regression, during the luteal phase. The vaginal smears reflect this cycle as follows: attention is paid chiefly to the epithelial cells, which represent desquamated mucosa cells. During the stage of estrone production and vaginal mucosa proliferation, the smears consist of squamous epithelial cells with large vesicular nuclei and granular cytoplasm. As maturation of the ovarian follicle progresses, proliferation of the vaginal mucosa increases, but the epithelial cells seen in the smears show gradually increasing pycnosis of the nuclei, gradual disappearance of the granules in their cytoplasm, and replacement of the cytoplasm by a horny material, keratin. These changes are known as cornification. The vaginal mucosa has become so thick-layered that the super-epithelial cells have grown farther and farther away from their blood supply and have undergone this degenerative process. Pycnosis, a cardinal sign of cornification, refers to condensation of nuclear material, the large vesicular nuclei becoming small and dense. Keratinization of these cornified cells is indicated in the smear by the deep eosin (red) stain the cells take. Cornified cells appear at the height of estrone production and are characteristically large and red staining, with agranular cytoplasm and pycnotic nuclei. The nuclei of completely cornified cells disintegrate into fragments and even disappear. This is evidence of maximum unopposed estrone effort.

With the formation of lutein cells just before ovulation and the rapid increase of progesterone with ovulation, the secretory phase of the vaginal cycle is indicated in the vaginal smears by degeneration and increased desquamation of the epithelial cells. There is no longer unopposed estrone effect. Progesterone has the ascendancy over estrone. The cells become clumped together, their cytoplasm wrinkled, their edges rolled and scalloped, their cytoplasm, usually agranular, shows evidence of vacuolization.

A few days before menstruation, with regression of the corpus luteum in the absence of fertilization, the rapid diminution of production of both estrone and progesterone causes a similar rapid thinning of the vaginal mucosa. The sloughed off epithelial cells break up into fragments. In the smears the cells appear faded and broken into halves or parts, only one part, perhaps, containing a nucleus. Cell debris is typical of the premenstrual smear. Cell and nuclei outlines are indistinct. The smear is dirty.

The follicular stage of the gonadal cycle is thus evidenced by progressive cornification of the epithelial cells and the degree of cornification may be taken as a measure of estrone production. Maximum

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cornification usually occurs just before ovulation, or under the influence of forced estrone therapy, due to unopposed estrone activity. The corpus luteum stage of the cycle is indicated in the smears by increased desquamation and degeneration of cells fully or partly cornified. The premenstrual stage is characterized by marked degeneration. The cells regress, break up under low hormone effect. The features of the vaginal cycle as reflected in the epithelial cells of the vaginal smears are recapitulated in the accompanying table.

FIG. 2.
THE VAGINAL CYCLE AS REFLECTED IN THE EPITHELIAL CELLS OF VAGINAL SMEARS.

Follicular (post-menstrual) phase. Beginning estrone effect.
Epithelial cells become increasingly large with granular cytoplasm and vesicular nuclei. Cells stain bluish or purple.

Pre-ovulatory—Maximum unopposed estrone effect.
Epithelial cells become cornified, cytoplasm stains red, becomes agranular. Nuclei become pycnotic or fragmentary.

Ovulatory—First evidence of progesterone effect.
Similar to the pre-ovulatory stage, but increased desquamation. Epithelial cells appear in flat placques, like shingles. Some cells show early effect of progesterone (rolling and scalloping of their edges). The smear is very clean.

Post-ovulatory—Estrone and progesterone effect with progesterone in ascendency.
Epithelial cells clump or aggregate, their edges roll and scallop. Their cytoplasm becomes wrinkled and vacuolated. Desquamation is faster than proliferation. The desquamated cells are degenerating. There is a reversal of the process of cornification. Cell cytoplasm is progessively less keratinized. Nuclei progessively larger and more vesicular.

Pre-menstrual—Phase of low hormone effect of both estrone and progesterone.
Epithelial cells fade and break into fragments. Cell and nuclei outlines become indistinct. The smear is dirty. The broken up condition of the cells is characteristic.

Rubenstein has divided the epithelial cells most commonly seen in vaginal smears into eight types. The first four represent progressive cornification. The fifth and sixth represent progesterone effect, desquamation and degeneration of cornified and partly cornified cells; the seventh type reflects the breaking up of cells characteristic of the premenstrual phase. Type eight is the so-called "deep or basal" cell, described by Papanicolaou as evidence of vaginal atrophy as seen in the menopause or in primary ovarian amenorrhea. It is not seen in the normally menstruating woman.

Whereas the most important elements in the vaginal smears are the epithelial cells, since these most accurately reflect the gonadal activity, other elements are present to varying degrees in most smears, bacteria, leucocytes, mucus, fibrin, red blood cells. Bacteria and leucocytes are usually abundant in phases of low hormone content and progressively diminish with increasing estrone production. The ovulatory smears are characteristically "clear" (only a few bacteria) and leucopenic—only a few leucocytes. After ovulation, there is a marked influx of leucocytes and more and more bacteria are also present. Bennett describes certain puffed leucocytes characteristically present among the few leucocytes of the ovulatory smears. The same author claims that during the proliferative phase of gonadal activity, the bacteria present are predominantly gram negative cocci, while those of the late luteal phase are predominantly gram positive bacilli. We have tried repeatedly to confirm this, but have been unable to get the consistent results claimed by Bennett. However, the gram stain, which is the technique used by Bennett, has been very difficult for us to use satisfactorily.

MUCUS

Some thin mucus is present in post-menstrual smears but it becomes more and more watery and less and less apparent with maturation of the ovary until there is usually no recognizable mucus at ovulation. Mucus is abundant in the post-ovulatory and luteal phase due to the secretory effect of progesterone. A few red blood cells are at times seen in ovulatory smears. Fibrin and, of course, many red blood cells are seen at menstruation.

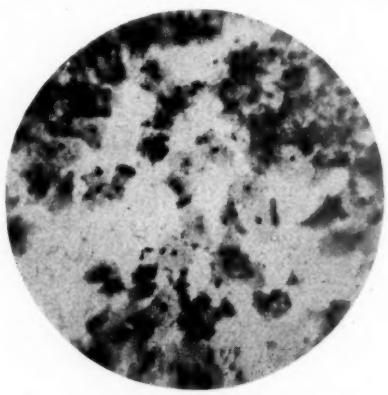

Fig. 3.—Seven days post-menstrual. Under the influence of estrone, the epithelial cells are becoming increasingly large with granular cytoplasm and vesicular nuclei.

When we first tackled the vaginal smear method,

it seemed vague, intricate and unsatisfactory. The hardest phase of the study was the acquisition of a suitable staining technique. Thereafter, familiarity with the smear types was soon acquired. We learned to recognize the smear patterns of the normal menstrual cycle and to interpret abnormal findings. Proliferative, ovulatory, and luteal smears became recognizable. We began to sense the degree of estrone or progesterone effect presented. Our work is still in the embryonal stage and this paper is based primarily on the researches of others. We are showing a few of our slides just to indicate how easily the vaginal smear method adapts itself to the facilities of a small office laboratory.

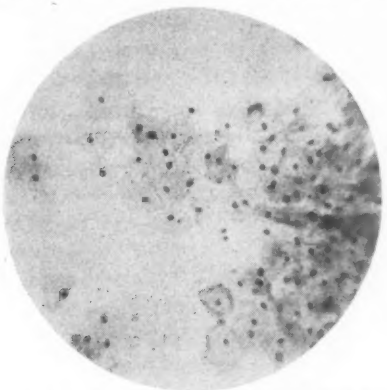

Fig. 4.—Ovulation. Epithelial cells are cornified and appear in flat placques, like shingles. The smear is very clean.

THE PRACTICAL APPLICATION OF THE VAGINAL SMEAR METHOD

Space permits only a brief description of the practical uses of the vaginal smear technique. The method has been used most popularly to recognize (1) minor degrees of estrone deficiency as in hypo-ovarianism or as in the menopause. (2) To recognize estrone response and to determine the quantity of estrone necessary to get full estrone effect. (3) To indicate the probable time of ovulation and suggest hormone deficiency existing in sterility cases. The present theory of estrone-progesterone imbalance as the cause of many other functional disorders, such as mastodynia, pre-menstrual tension, dysmenorrhea, menorrhagia, suggests other instances in which further research will prove the method to be of value.

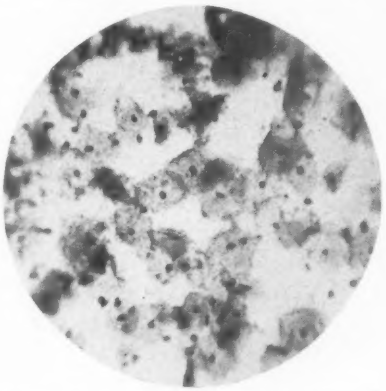

Fig. 6.—Three days pre-menstrual. Marked desquamation at the height of progesterone activity.

STERILITY STUDIED

Smears indicate the probable time of ovulation and thus optimal time for marital relations or artificial insemination, help detect anovulatory mens-

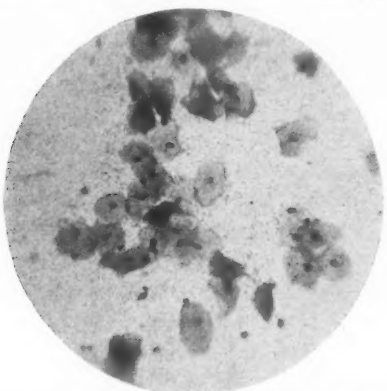

Fig. 5.—Seven days pre-menstrual. Under the influence of progesterone the epithelial cells clump, their edges roll and scallop, their cytoplasm becomes wrinkled and vacuolated.

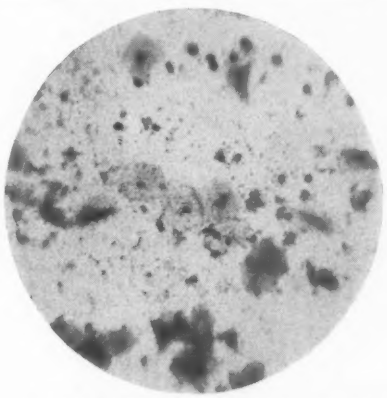

Fig. 7.—One day pre-menstrual. Marked reduction in estrone and progesterone causes the epithelial cells to fade and break into fragments. Cell and nuclei outlines become indistinct. The smear is very dirty.

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truation, indicate estrone or progresterone lack in the normally menstruating woman, pointing out the time and nature of treatment needed to correct the deficiency. A poor progesterone phase could readily account for failure of implantation. Progesterone therapy guided by vaginal smears has proven corrective in some cases. Ovulation during menstruation is not too uncommon a cause of sterility and explains the pregnancy that occurs following coitus at this time. Smears readily indicate this cause of sterility. It should be noted that the time of ovulation cannot be detected from a single smear examination. It is best recognized by comparison with preceding and subsequent smears.

Amenorrhea and hypo-ovarianism: Vaginal smears indicate the degree of estrone deficiency in primary amenorrhea, associated with an infantile uterus. Atrophic smears with "deep cells" are seen; the smears resemble that of the menopausal or castrate patient. In secondary amenorrhea, smears reflecting low estrone activity, such as in the post-menstrual or pre-menstrual smear, are seen. When estrone therapy is begun the smear method is the simplest and most accurate index of adequacy and frequency of dosage. The smears show increasing proliferation to full cornification as treatment progresses. Secondary amenorrhea is usually treated by gonadotropic substances, preferably that of pregnant mare serum, or from the pituitary gland (gonadotropic factor of Armour). If true gonadotropic effect is obtained, the vaginal smears should reflect the increased ovarian activity.

MENORRHAGIA

Androgen therapy seems to be replacing chorionic gonadotropic substances, such as A.P.L. or follutein. For a thorough trial of androgens which suppress both ovarian hormones, atrophic smears should be obtained.

PREGNANCY

Bennett, Papanicolaou, Rubenstein all claim vaginal smears aid in the early diagnosis of pregnancy. The progesterone phase is still found on the day the period is expected, instead of the broken up "smear" characteristic of the late pre-menstrual phase. Bennett goes further, stating that threatened abortion, toxemia and premature labor may be anticipated by following the vaginal smears. Fletcher has been able to diagnose incomplete abortion by the vaginal smear method. The active denudation of the vaginal mucosa that follows parturition is accompanied by the appearance of characteristic outer basal or pavement cells in numbers equal to or more prominent than the usual superficial epithelial cells.

LEUCORRHEA

Smear studies often present opportunities for individualization of therapy in leucorrhea. For instance, occasionally one finds many large cornified cells from masturbation or excessive sexual activity and androgen rather than estrone becomes the therapy of choice.

GONORRHEAL VAGINITIS

Vaginal smears offer the best means of guiding the estrogenic therapy.

SENILE VAGINITIS

As described subsequently, characteristic smear findings indicate the degree of estrone lack. Smears enable one to visualize the vaginal response to specific therapy, estrone. An excessively dry vagina may not always respond to estrone alone. Smears may indicate that combined estrone and progresterone therapy are necessary to obtain the secretory and desquamatory effect desired.

CARCIMONA OF THE UTERUS

Recently Papanicolaou and Traut have demonstrated that cervical and uterine cancer may be revealed by the vaginal smear method. Cells are seen which do not fall into the categories of any of the cell types found in the smear of normal women. They are thought to be derived from the superficial layers of the malignant lesion.

Last, but not least, we wish to describe the most frequently employed and the most practical uses of the vaginal smear method, the diagnosis of the menopausal state and of other degrees of hypo-ovarianism and the response of these conditions to estrone therapy.

THE MENOPAUSE

At menopause, the vaginal mucosa becomes thin and atrophic and as a result the vaginal secretions are altered. Characteristic changes, which are practically never seen in normally menstruating women are seen in the vaginal smears. Again, we are indebted to Papanicolaou and Shorr, who have so accurately described these findings. In advanced atrophy the smears show numerous compact, round or oval cells with rather large round or oval nuclei.

These cells are derived from the deeper layers of the vaginal mucosa, and are known as "deep or basal" cells, seen only in the smears of primary amenorrhea, the menopause and after parturition. In the menopause, their presence is the result of thinning of the vaginal mucosa, and the absence of well developed superficial layers of squamous epithelial cells of the normal vagina. The menopausal smears also show some leucocytes and red blood cells and bacteria. Leucocytes are present, due to their unhampered migration through the thin mucosal wall. Fibrin may be present and the erythrocytes may be fragmentary. There is a moderate amount of mucus.

The bacterial flora is generally rich, giving a dirty appearance to the smear. The increase in bacteria may be attributed to the decrease in desquamatory and secretory processes with prolonged retention of the cellular debris within the vagina.

When the mucosal atrophy is less marked, the number of "deep" cells varies from great abundance to almost complete absence, and the superficial cells become more prominent. However, the superficial cells bear evidence of low estrone activity, form irregular clumps, lack sharpness of cellular outline and structure. Geist and Salmon divide their vaginal smears into four main classifications, according to the relative proportion of atrophic or deep cells, and partly or wholly cornified cells present.

As a result of sustained treatment with ovarian follicular hormone, uniform and characteristic changes occur in the vaginal smears. Mucus appears, leucocytes and erythrocytes disappear. Deep cells are no longer seen and all other cells are replaced by large flat well outlined cells, many of these cornified with small pycnotic nuclei. Bacteria disappear and the smears take on a clear appearance. If therapy is adequate, the smears are similar to those at the height of follicular activity, as seen at ovulation in the normal menstruating woman.

There are just as definite regressive changes if estrone therapy is reduced or discontinued. Numerous deep cells are seen, the large and cornified epithelial cells disappear, and bacteria and leucocytes again become prominent.

With such definite fluctuations in smear findings, correlated so closely to ovarian activity, the vaginal smears find their greatest field of usefulness to date. Minor unsuspected degrees of estrone deficiency are detected and specific therapy applied where neurosis would otherwise be diagnosed. Symptoms of the menopause are more accurately evaluated. The relief of flushes is no longer taken as a criterion of adequate therapy. Dosage is pushed to follicular effect, as seen in the smears. The frequency and amount of estrone necessary to maintain full therapeutic effect is likewise scientifically ascertained. Persistence of symptoms in the presence of vaginal smears showing full follicular effect suggests that one should look for other real or psychic causes of these symptoms. Or a maintained follicular type of smear in the absence of estrone therapy might suggest androgen therapy.

Before closing, we should like to reiterate the theoretical value of the vaginal smear method in this heyday of miscellaneous hormone therapy. Reference has already been made to the response to be expected in the smears from estrone, progesterone, and gonadotropic principles and androgen. Some light should be thrown on the value of estrone and progesterone products by mouth by the vaginal smear evaluation method. Likewise, in the newer field of subcutaneous implantation of pellets of estrone, progesterone and androgen, the smears should be of inestimable value in studying the amount and duration of their effect and the time for additional implantation.

CONCLUSION

Vaginal smears reflect the state of the vaginal mucosa and are thus an index of ovarian hormone activity. Characteristic smear fluctuations occur throughout the monthly cycle of the normally menstruating woman, with definite follicular, ovulative, and luteal phases. Vaginal smears of menopausal patients have classic patterns. There are definite smear changes in response to hormone therapy, especially in response to the ovarian follicular hormone. The vaginal smear method is relatively simple and practical, and may frequently replace more complicated procedures such as endometrial biopsies and biological assays. Present usefulness of the method has been confined chiefly to the diagnosis of minor and major degrees of ovarian deficiency and to the recognition of estrone response and to the estimation of the estrone necessary to get and maintain full estrone effect. Offering a means of deter-

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mining the probable time of ovulation, the method has theoretical value in the sterility problem.

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Medical Arts Building.

DISCUSSION

DR. WAVERLY R. PAYNE, Newport News: You who have heard Dr. Lowenberg's paper only once cannot fully appreciate the amount of work involved in its preparation. I had the advantage of reading it as much as I liked, and each time found something new. My only criticism is that the doctor could have written several good papers with this amount of material.

Every patient whose history and physical examination suggests an endocrine disturbance presents the problem of determining the degree of disturbance and also the problem of adjusting the dosage of therapeutic measures. The basal metabolism test and the endometrial biopsy are relatively simple procedures compared with the highly specialized technique of determining the amount of hormone excretion by laboratory methods.

Every physician whose clientele includes women is daily confronted with the very real problem of differentiating between symptoms produced by the true menopause and those of neurogenic or psychogenic origin. We must agree that they may be similar in every respect. This leads to the observation that a fairly large percentage of cases are mislabeled and treated unwisely with estrogenic hormone without getting any relief of symptoms. It is my opinion that Dr. Lowenberg's discussion relating to the technique and interpretation of vaginal smears represents one of the most outstanding recent advances in the entire field of gynecology.

In closing, I want to urge you to make a more complete study of this very fine paper when it appears in the VIRGINIA MEDICAL MONTHLY.

DR. LOWENBERG, closing discussion: I am sorry I had to read this paper so fast as there are many practical uses of vaginal smears to bring out, for instance, the detection of the period of ovulation and the use of this knowledge for artifical insemination even when using the husband as a donor.

Dr. Payne asked me about the staining method. This was our greatest problem because we had difficulty in getting good results for a long while. We found that the Ucko method which is a modification of the Giemsa stain is most satisfactory and simplest for our purposes. Methylated spirits, which can be obtained from any pharmaceutical house, is poured on the smear and allowed to remain for two minutes; wash off and stain the smear for twenty minutes with freshly diluted Giemsa solution (1:15); wash the slide; let it dry and mount with Canada Balsam and a cover glass.

Dr. Payne asked of the value that vaginal smears had been in detecting the menopause and hypo-ovarianism. The smears enable one to estimate the degree of estrogen lack in the menopause and will often enable one to detect hypo-ovarianism in the regular menstruating woman. The smears also enable one to decide on the amount of estrogen therapy necessary to correct the deficiency at menopause.

THE DIAGNOSIS OF PRIMARY CUTANEOUS BLASTOMYCOSIS (GILCHRIST'S DISEASE)*

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and
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Cutaneous blastomycosis was described by Gilchrist[1] in 1894. The following description of "protozoan dermatitis" appeared in the Proceedings of the American Dermatological Association: "The protozoa were shown under the microscope. They were very numerous, sixty sometimes being in the field. Twenty have been found in one giant cell. A dog had been inoculated, the same disease reproduced and protozoa being found. Dr. Gilchrist considered the bodies as belonging to the vegetable rather than to the animal kingdom."

According to Castellani,[2] the term blastomycosis includes all conditions which are caused by yeast-like or budding fungi. In the United States it is used to denote a clinical entity characterized by the presence of granulomatous verrucoid lesions in which fungi of the blastomycete type are found.

*From the Department of Dermatology and Syphilology of the Medical College of Virginia.

The causative fungus was named Blastomyces dermatitidis by Gilchrist and Stokes[3] because they thought that the organism belonged to a group of yeasts which were non-fermenting and produced mycelia on artificial culture media. In this paper the cutaneous type will be considered, with especial emphasis on differential diagnosis.

The disease is most frequently encountered in middle-aged males of the lower working classes. Many cases have been observed in the Middle West, especially around Chicago. A number of cases have been reported from Virginia. Anderson[4] of Norfolk states that he has a number of cases under treatment the year round.

Stober[5] has contributed some observations regarding some of the possible sources of infection. He makes the following statement in regard to the growth of the organism: "No difficulty was experienced in obtaining growths on sterile moist bread, paper, cardboard, cotton, sawdust, fruit and vegetables". He investigated the living quarters of some of his patients, and in one he was able to obtain a mold from damp wood which closely resembled the organism of blastomycosis. A history of trauma may be obtained in some instances, that is, barb wire scratch, injury at autopsy and injury while walking barefoot. No definite instance of contagion has been reported.

The clinical features of blastomycosis have been admirably described by F. H. Montgomery.[6] The cutaneous lesions are usually located on the exposed parts of the body. Thus, the face, ears, neck, wrists, hands and legs are the favorite sites. The initial lesion is a papule, or papulo-pustule, which gradually enlarges either by peripheral extension or the appearance of new foci. A crust usually covers the whole area, which may attain a diameter of six or eight inches. When the crust is removed a papillomatous wart-like surface is exposed, which is bathed in a seropurulent secretion. These papillary elevations are made up of the miliary abscesses which are characteristic of blastomycosis (Fig. 1). There may be bleeding, and at times the lesion may look like an ulcer with unhealthy granulation tissue. The border of the lesion is most characteristic. It has a violaceous or dusky red hue and is elevated (eighth of an inch to three-eighths of an inch), and slopes abruptly to the normal skin. Here, with the aid of a hand lens, the yellow pin-point-sized miliary abscesses may be seen.

The course of the disease is irregular. Generally, healing begins in the center, with a soft, supple, noncontractile scar. Some of the miliary abscesses remain in the scar for a long time; they are probably responsible for the relapses.

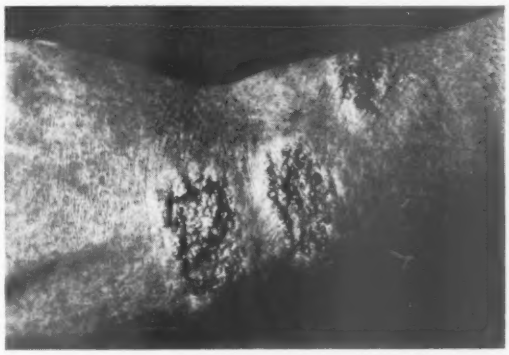

Fig. 1.—Blastomycosis dorsal aspect of wrist.

A tentative diagnosis of blastomycosis may be made when the organisms are present in the pus, or in excised tissue. The diagnosis is established beyond doubt when Blastomyces dermatitidis is obtained in a culture from the lesion. Skin tests and complement fixation reactions may be resorted to.

Examination of the pus is easily done. Several droplets of pus may be obtained by applying pressure to the border of the lesion. A slide is touched

Fig. 2.—Budding organisms. Note artefacts.

to one or two of these and a drop of aqueous potassium or sodium hydrate solution (ten to thirty per cent) is mixed with the pus. With the high dry lens the organisms appear as round, doubly contoured highly refractile bodies from five to twelve

microns in diameter. Budding and figure of eight arrangements are fairly frequent (Fig. 2). Tap water[7] may be substituted for the hydrate solution with some advantage. By this procedure the confusing artefacts formed by the fats (in the pus) and the hydrates are eliminated.[8,9] A drop of the

Fig. 3.—Baso-squamous cell cancer. Note rolled border.

pure pus may also be examined. The cover glass is rimmed with vaseline and the preparation kept at room temperature for twenty-four to forty-eight hours. After this period of time budding and mycelial filaments may be seen, which points to the suspected structure as being a fungus. The organism is easily identified in sections of excised tissue stained with hematoxylin and eosin.

Cultures of the fungus may be obtained by planting the pus on suitable media. One of the best is Sabouraud's dextrose agar. Martin and Smith[10] suggest that some of the suspected material should be inoculated on blood agar plates. They believe that blood in the medium may be of help in isolating some of the strains. They have also succeeded in maintaining the yeast-like form of the organism on blood agar plates.

Sections of excised tissue stained with hematoxylin and eosin show hyperplasia of the epithelium. The downgrowth of the rete cones results in areas of the corium being enclosed. These areas resemble the true epithelial abscesses. Polymorphonuclear leucocytes can be seen throughout the epithelium. The epithelial abscesses are formed by collections of these leucocytes, and in addition they may contain the blastomycetes and giant cells. The corium is the seat of chronic inflammation also. Here plasma cells, lymphocytes, polymorphonuclear leucocytes, giant cells, and some blastomycetes are found.[11]

A tuberculin like skin reaction may be obtained with a heat-killed suspension of blastomycetes in some cutaneous cases.[12] In cutaneous cases the complement fixation reaction is usually negative.

There are a number of cutaneous lesions which have to be differentiated from blastomycosis. Stober[4] has made the following statement: "blastomycosis should be ruled out in all cases of chronic pustular and ulcerative lesions of the skin . . ."

Fig. 4.—Bromoderma located on calf.

Clinically, tuberculosis verrucosa cutis and blastomycosis are very similar. This lesion is produced by the direct inoculation of the tubercle bacillus into the skin. It is most often encountered in individuals suffering from pulmonary tuberculosis, but

may occasionally be seen in butchers who have handled infected meat. The favorite site is the dorsum of the hands. This may be explained by the fact that after coughing the phthisic patients wipe off the lips with the backs of the hands. The acid fast bacillus may be found in the excised tissue in some cases. Guinea pig inoculation will confirm the diagnosis of tuberculosis.

Fungating papillomatous lesions are sometimes encountered in cutaneous cancer. In blastomycosis the lesions are usually multiple, whereas in carcinoma they are single. The cauliflower-like lesions are seen most frequently in basal cell epithelioma. A close inspection of the margin will reveal the typical pearly, waxy raised, or rolled, border (Fig. 3). Superficial telangiectatic vessels may course over the pearly nodules. The miliary abscesses seen in the border of blastomycosis are absent in cancer. In some areas of basal cell epithelioma, healing may take place which results in an atrophic scar not unlike that seen in healed blastomycosis. Fungating baso-squamous and squamous cell cancer are not so common. When they do occur, they are generally found on the dorsum of the hand. The presence of pre-epitheliomatous keratosis would favor the diagnosis of cancer. Histological examination will clinch the diagnosis for malignancy.

Fig. 5.—Tinea barbae

The ingestion of bromine or iodine in certain individuals produces vegetating cutaneous lesions (Fig. 4). A clue may be obtained from the history. The bromides are more frequent offenders than the iodides. In 1909, Ormsby[13] of Chicago reported a series of cases of bromide eruptions that were mistaken for blastomycosis. Clinically, the lesions of bromoderma may present the raised papillomatous purplish-red border, with clearing in the center. Wile[14] has recently described a simple test for the detection of bromine in the urine. More recently blood bromide determinations have become popular. Wiener[15] has observed a case of vegetating iododerma which was clinically indistinguishable from a bromoderma. In the above instances the withdrawal of the offending drugs and increased salt intake should be of diagnostic and therapeutic value.

In most of the standard textbooks of dermatology tertiary syphilis (vegetating type) is considered as one of the important lesions to be differentiated from blastomycosis. Stokes[16] states: "The lesions of blastomycosis are the least likely granulomas to be confused with late syphilids, yet confusion can and does occur." In considering the diagnosis of bromoderma and late syphilid, Stokes[17] makes the following statement about the border of the bromoderma: "The border, however, is papillomatous, and a papillomatous border practically eliminates syphilis." The history and Wassermann reaction are of help in ruling out syphilis. Harris[18] of Chicago has shown that blastomycosis often responds to arsphenamine therapy. Obviously the non-specific effect of this drug and the iodides are of no help in arriving at the diagnosis.

There is another fungus infection of the exposed surface, namely, tinea barbae (Fig. 5). This disease is rather uncommon. It is usually seen in farmers who give a history of having been in contact with infected cattle. The granulomatous lesions occur in the bearded area. There is much pus, but the violacous color of blastomycosis is not present. The hairs are easily pulled out. These patients may have a fever and in general may be quite sick. In cutaneous blastomycosis the patient rarely, if ever, has constitutional symptoms. The pus of tinea barbae contains the spores and mycelia. Mycelia are never found in the pus or tissue of blastomycosis.

Sporotrichosis is characterized by multiple cutaneous and subcutaneous nodules in linear arrangement, usually on the upper extremity. Very often a history of abrasion can be obtained. The diagnosis is made by aspirating one of the nodules and isolating and identifying the organism on culture media. The pus may also be inoculated into the peritoneal cavity of a rat. This produces an orchitis and the organism can be found in great abundance.

Actinomycosis involves the skin secondarily. Nodules and draining sinuses occur on the lateral

aspects of the neck. Sulphur granules are found in the pus and sections of excised tissue. The organism can be identified by culture.

Only a few more words will be added concerning some of the more rare granulomas which may be encountered. Coccidioidal granuloma is endemic in the San Joaquin Valley of California. It is caused by Coccidioides immitis, which is easily identified by the endospores. Chromoblastomycosis, which is rare in the United States, is characterized by verrucous lesions of the extremities. The organism is seen as brown sclerotic cells in sections of excised tissue. Torulosis involves the central nervous system but in rare instances skin lesions have been observed. Smith and Hitch[19] have reported a granuloma of the upper extremity in a case of tularemia. Here the history and agglutination tests help in arriving at the proper diagnosis.

The lesions of cutaneous blastomycosis respond well to roentgen ray irradiation and iodides internally. The iodides should be forced to the limit of tolerance. Prompt treatment of cutaneous lesions will usually insure the patient against systemic involvement which, if it does occur, is almost invariably fatal.

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Professional Building.

NEUROSURGERY IN THE TREATMENT OF INTRACTABLE PAIN*

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Pain is undoubtedly the principal reason for our existence as a profession. I have, therefore, chosen as my subject neurosurgery in the treatment of intractable pain. Time does not permit nor the title justify a discussion of pain as a symptom of remediable disease outside the nervous system. The pain associated with stones in the biliary and urinary tracts, or with inflammations, is well known and its treatment recognized as having to do with the removal of the inciting cause. The severe headaches and sharp pains associated with tumors, compressions and abscesses of the brain and spinal cord are known, and here, again, the treatment is directed to the removal of the inciting cause. This principle of treating or removing the cause of illness, deformity or pain when possible is universally accepted; and it is not my purpose to discuss the treatment of such conditions.

I wish rather to call your attention to some conditions for the relief of which surgical treatment is

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directed to the nervous system itself. As Cutler has so aptly stated, "the surgeon must always bear in mind this rule: before any operation is undertaken that has for its primary object the denervation of a painful part he must prove to himself that a direct attack on the lesion is impossible."

In some of the following conditions we attack both the lesion and the nerves from the lesion at the same time; in others, we disconnect the central nervous system from the site of painful stimulus, and in still further conditions, in order to cure pain, we break up a reflex arc which seems to play a role in both the production and reception of pain as the patient experiences it. Let us consider, first, post-traumatic headache or that syndrome of uncomfortable symptoms which frequently appears following injury to the brain or its coverings.

Penfield, in 1927, first described the classical symptoms of this condition and recommended a treatment by lumbar air insufflation into the subarachnoid space. As he has emphasized, not all cases of headache can be successfully treated by the injection of air. The criteria for the selection of these cases are:

1. Headache definitely localized to one area, often near the site of injury or inflammation and occasionally in the contracoup position. The headache is usually dull and hammering.

2. Dizziness, lightness in the head or a far-away feeling, which often lasts for several minutes without a sense of rotation. This vertigo without signs of cerebellar or vestibular disease is often brought on by stooping, rising or walking, and the patient likes to have some support to keep from falling. He often notices the dizziness when he bends over to tie his shoes in the morning.

3. Those headaches accompanied by a history of head injury or of inflammation in the central nervous system.

Treatment which has proven so successful in many of these patients is that of insufflation of air into the subarachnoid space, the patient lying on the side opposite the site of the headache with his head slightly elevated. This may be done through a lumbar puncture needle or directly through a burr hole in the skull. For the spinal insufflation the usual careful technique of an encephalogram is used, but an effort is made to fill the subarachnoid space rather than the ventricles of the brain, and filtered air is preferred to oxygen, as it requires longer for absorption. X-rays are taken and usually show the spotty mottling which is characteristic of adhesions in the meninges with slight cortical atrophy. When the patient is returned to bed his head is rotated from side to side every five minutes for one hour by a nurse. This movement causes the air to change its position and tends to break up the filamentous adhesions and relax tension on vascular or meningeal nerve fibers which are associated with brain scarring and headache. It also occasionally helps drain localized collections of intra-meningeal fluid.

As there are occasionally those patients with adhesions so dense that air alone will not free the meninges, local trepanation of the skull over the point of maximum headache followed by mechanical division of adhesions is sometimes necessary. Two of my recent patients who were not relieved of headaches by encephalograms were relieved by ventriculograms and the only explanation I can give is that by opening the subdural space there was produced sufficient change in the relationship between the meninges, brain and vascular sinuses to relieve the tension on the nerve connections, or that subdural fluid in excess of normal was allowed to drain out under the scalp. This fluid was noticed at operation in one of the patients.

Major trigeminal neuralgia was perhaps first described in the second volume of the publication of the "Imperial Leopoldinian Academy of Natural Sciences", 1671, as the disease afflicting its founder and first president, Johannes Laurentius Bausch. The condition is well known to all of us as an affliction of undetermined etiology, causing attacks of sharp lancinating, excruciating, paroxysmal pain in some part of the face or forehead, appearing spontaneously or brought on through the stimulation of a so-called trigger zone, by eating, drinking, brushing the teeth, talking, shaving, washing the face or even smiling. The pain is often referred to the teeth and we frequently see unfortunate patients who have sacrificed sound teeth in the hope of relief from the pain.

The treatment consists of alcoholic injection of the branch of the trigeminal which is involved or operation with pre-ganglionic section of the sensory root of the fifth nerve. Differential section of the sensory nerve root with preservation of the corneal fibers and motor trunk has replaced the older

operations of gasserian ganglionectomy, complete evulsion of the roots, etc.

Although this affliction is not as common in Virginia and West Virginia as it is in the localities with colder climates, I have seen and treated several patients here and I believe they are among my most grateful patients. One of them is an example of trigeminal neuralgia with the trigger zone in one division and the pain in another division of the nerve. This man had severe, lancinating pain in the right forehead which was so great that he could not do his work. He had been treated with local heat and diathermy, medicines, etc., but without relief. I injected his supra-orbital nerve and finally obtained complete anesthesia of the right forehead without relief of the pain. Being rather at a loss to know why he had failed to obtain relief despite the anesthesia, I questioned him again about his pain. It was then found that although the pain always limited itself to the right forehead it often appeared as he started to eat his meal. The right third division was then injected and complete relief of the pain in the forehead was obtained. He is well to date.

We use four parts alcohol and one part ether for these injections and anesthetize first with a few drops of 2% novocaine. All patients with trigeminal neuralgia should first have an alcoholic injection, even if they are to be operated upon, for they will then experience the loss of sensation and the surgeon will know whether with anesthesia relief will come. Further, with alcoholic injection sensation will eventually return and the pain may not; but with operation the sensation is gone not to return and there are some people who, when confronted with this outlook, having never experienced anesthesia previously, will become wild, irrational or psychotic despite relief of pain.

I have recently seen a patient who illustrates the danger of operation for facial neuralgia or head pain without preliminary alcoholic injection. Mrs. C. had pain in her right temporal region, of burning nature, which later spread down to the edge of the lower jaw in 1938. In 1940, a posterior root section of the right fifth in the posterior fossa was done in another clinic, without preliminary alcoholic injection. Recently I saw her for the first time. She had anesthesia of the right side of her face but there was rather a wide margin of the right lower jaw not affected, and the anesthesia stopped rather far forward in the temporal region. The burning was chiefly in the right temple and always began there but sometimes seemed to spread to the malar region, where there was objective anesthesia. Thinking the fifth root section might be incomplete, I injected the right gasserian ganglion with novocaine, in fact, with enough novocaine so that temporary paralysis of the right motor fifth was obtained and the right third was affected, causing dilatation of the right pupil. The pain persisted. The right stellate ganglion was then injected, producing a tyical flush of the face with right Horner's syndrome without relief of the burning. I was nonplussed and at a loss to understand the situation. The woman was, I believed, neither a malingerer nor a case of hysteria. She then mentioned a feeling of pressure or fullness at a point in her neck which corresponded exactly to the point of exit of the greater auricular nerve from behind the sterno-cleido-mastoid. I injected this point with 10 c.c. of novocaine, 1%, and the patient immediately said her burning pain was gone. It did not return for over three hours. A second and third injection with novocaine caused relief for varying lengths of time and on each return of pain it seemed less pronounced. I offered alcoholic injection or rhizotomy but the patient felt so much better that she said she would go home and would come back if her pain returned. I have not seen her again, so I hope that she is well.

Had alcoholic or novocaine injection of the right fifth nerve or ganglion been done as a preliminary procedure in this case the patient might have avoided her root section and the surgeon would have been able to look for the real source of the pain.

Alcoholic injection is the procedure of choice in old or debilitated individuals who would be bad risks for even the minor shock of posterior root section. Section of the fifth nerve root in the posterior fossa or of the spinal root of the fifth nerve in the medulla are valuable procedures reserved for very special cases, but, despite efforts to popularize the posterior approach, it has more potential risk to the patient than the temporal one.

Sphenopalatine neuralgia is a condition not frequently seen, but I recently had such a patient referred to me by Dr. Charles St. Clair, and the relief on treatment was so great that I feel justified in repeating the history. The young man, 19 years of age, had felt as though he had a slight cold

coming on, and the night before we saw him he had suddenly experienced most excruciating pain, radiating from the region of the ear around over the left malar region to the temple, the eye, and deep into the face. When I saw the man he was holding the left side of his head with not only his hands but his arms as well; he was doubled up and rocking back and forth on the edge of the bed. From the severity of the pain, it seemed at first that alcoholic injection of the sphenopalatine ganglion might be necessary, but, as a preliminary measure, we anesthetized the middle turbinate with metycaine and, rather to my surprise and much to the patient's relief, his pain stopped. During a two day stay in the hospital the pain did not occur and, so far as I know, there has been no recurrence to the present time. The case is interesting both because of the relief which is afforded by anesthetizing the tip of the middle turbinate and also because it illustrates the relief which can be obtained by breaking up the sensory arc in pain of autonomic origin or in which the autonomic system plays an important part. We are constantly being confronted with pain of this type, and, fortunately, the neurosurgeon now has at his disposal a number of procedures for its relief. I refer to the treatment of causalgias, pain or trophic disorders, painful stumps, peripheral spasm with hyperhydrosis and intermittent claudication, and even angina pectoris. We haven't time for detailed discussion of each condition and its treatment, but, in general, I may say that the injection of novocaine into the skin about an area of burning hyperesthesia, the injection of anesthetic in oil about an area of herpes, novocaine or alcoholic injection of the paravertebral ganglia, or cervical, thoracic, thoracolumbar or lumbar sympathectomy, all have the one common purpose and result—that of breaking up the arc which plays the essential role in referred visceral and somatic pain.

In this case of sphenopalatine neuralgia we broke the arc at its beginning by stopping the irritation which initiated the stimuli causing the pain. In cases of reflex or referred pain from the viscera where there are hypersensitive areas of skin, we stop the pain by breaking the arc at the point of reference, namely, by injecting the skin itself with novocaine or novocaine in oil; or we can even break the arc in the middle, as in angina pectoris, by injecting the para-vertebral sympathetic ganglia.

Another painful condition, similar in its attacks and severity to trigeminal neuralgia, is glossopharyngeal neuralgia. This condition often having a trigger zone-like true tic with agonizing pain in the pharynx, larynx, eustachian tube or inner ear, is frequently fully as painful and incapacitating as true tic douloureux. Complete relief without motor impairment of the pharynx or larynx is produced by intracranial section of the ninth nerve in the posterior fossa through a unilateral suboccipital approach. The danger of this procedure is slight.

Pain in the arm due to compression of vessels or nerves by a cervical rib, a spastic or hypertrophied scalenus anticus muscle, or a scar or fibrous band, is best treated by the section or removal of the tissue causing the pressure, and this treatment is not by way of the nervous system *per se*. However, even this pain, and more specifically vascular pain and joint or stump pains of the arms, can frequently be completely relieved by direct attack on the sympathetic chain or dorsal nerve roots.

The pain of angina pectoris can be greatly relieved by the injection of the first four thoracic sympathetic ganglia on the left side with alcohol. This technique requires an accurate knowledge of the anatomy of the thoracic sympathetics and care in preparation of the patient. As the procedure removes only the pain and not the cause, the patient must be warned against all activity which formerly caused his pain and his family must be prepared for his possible sudden death without warning. However, to be able to give one of these patients suffering from agonizing cramps and the horrors of impending death relief from his suffering, even if perhaps it does shorten life by removal of the warning pains, seems to be eminently worthwhile.

That the pain and suffering of peripheral vascular spasm can often be relieved by injection or removal of the sympathetic nerve supply to the part is now well known. The techniques of both the injection and the procedure of sympathectomy have been sufficiently well standardized to warrent their judicious use in all neuro-surgical clinics.

I well recall one of my early experiences with a patient who complained of cold, blue, perspiring hands and aching of her fingers. Her symptoms were less marked in summer but in winter she had acute aching pain in her fingers and wore gloves even in the house. In fact, she had rather a classical picture of the second stage of Raynaud's disease. I injected both stellate ganglia with 2% novocaine, us-

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ing the posterior route with the patient sitting in the upright position. Horner's syndrome appeared on both sides, the face became warm and dry, but the hands were still somewhat cool. Then gradually both hands became warm, red and dry. I now realize that some of my novocaine injection had diffused downward to affect the first, second and possibly the third thoracic ganglia. The girl was relieved of her pain and I advised sympathectomy but, as a result of this advice, she did not return as she was afraid of operation. I did not expect any permanent result from the one injection but I was surprised and pleased to hear from her sister later that the girl's hands had improved considerably following the one injection. We now know that such a result is not uncommon and that complete relief can sometimes be obtained by repeated novocaine injections alone without resorting to alcoholic injection or sympathectomy.

Recent studies have shown the close inter-relationship between pain, injury and swelling. Patients with severe sprains of the ankle have had the affected joint immediately injected with novocaine and then have gone on walking on the injured limb. Swelling is very slight, pain is negligible and healing is said to be rapid. Immediate injection of a fracture site with novocaine not only permits of painless reduction or manipulation but frequently limits swelling to a minimum and in my experience has shown no signs of delaying union. I have thought on a few occasions that the healing was more rapid than usual. Repeated injections of the lumbar sympathetic ganglia with novocaine are now being used successfully in the treatment of phlebitis of the legs.

The severe pain due to a compressing or irritative lesion of the spinal cord or its roots requires laminectomy for its relief. That relief may be obtained frequently by the direct removal of the cause of pressure or irritation. This is true in cases of operable tumor or abscess, herniation of an intervertebral disc, hypertrophy of a ligamentum flavum or bony deformity. There are, however, frequently encountered conditions where the cause of pain cannot be removed and it is of those patients and their relief that I now wish to speak.

Rhizotomy, or intradural section of the posterior nerve roots, has been found of great value in treating the pains of tabetic crisis, post-herpetic neuralgias and pains of incurable deep-seated visceral disease. Both in rhizotomy and in alcoholic injection or removal of the sympathetic ganglia for the pain of visceral disease it is often necessary to depend upon ascending spinal anesthesia to determine the dermatome level at which, with anesthesia, the pain will disappear. Para-vertebral injection with alcohol, sympathectomy or rhizotomy can then often be used to relieve pain in malignant disease of the esophagus, lungs, stomach and pancreas, and I have seen one case of yeast infection of the lung and pleura with excruciating pain relieved by high thoracic rhizotomy of only the affected side.

While my personal experience with pre-sacral neurectomy is rather limited, some of the more recent reports of studies on large series of cases indicate that we should use this procedure more for the relief of those unfortunate women who have severe, persistent and uncontrollable pain with each menstruation without gross pelvic pathology.

The subarachnoid injection of alcohol for the relief of pain due to malignancy in the pelvis or metastatic lesions of the pelvis and the lower spine is justified in some cases. It frequently gives instant and welcome relief but the value of relief of pain must be balanced against the possibility of some motor weakness and occasional bladder dysfunction which sometimes follows this intrathecal alcohol.

Finally, I want to speak about and in behalf of cordotomy or spinothalamic tract section for the relief of intractable pain. This procedure depends for its success upon the fact that pain and temperature fibers after entering the cord cross over and pass up the opposite side of the cord in the anterolateral tract.

Gowers, in 1879, and Van Gehuchten, in 1893, had predicted this location of a pain tract, but it remained for Spiller, of Pennsylvania, in 1904, to find clinical proof in a patient and suggest the procedure of anterolateral tract section. By 1911, Spiller and Martin had published the first case of cordotomy, and from that time on Spiller and Frazier, working together, refined and established the procedure as a definite and valuable forward step in clinical neurosurgery. In a clinic where the staff is trained to the details of careful laminectomy the technique of cordotomy is not difficult. The operation is best performed under para-vertebral block and

local infiltration so that the patient can respond when his sensation is tested. The site of operation for pain below the diaphragm may be in the upper thorax, or for pain in the breast or higher, operation is best done in the cervical cord.

Recently Dr. J. C. White, of Boston, has reported a case in which the patient had severe intractable pain in the right arm, shoulder and neck. She had previously had both sympathectomy and rhizotomy without relief of her pain. White did a spinothalamic tractotomy in the medulla oblongata with relief of the pain, and has described his technique in beautiful detail. This procedure should be extremely useful where other procedures fail to relieve the pain of malignant disease, vascular spasm, causalgias or amputation stump pain of the upper extremity.

Neurosurgical methods such as these are often the only means of relief for the exhausted pain-ridden sufferer from inoperable malignant disease. Cancer pain is constant and morphine wears out, as well as having many other disadvantages. Cordotomy or anterolateral tract section is an operation used too infrequently for the relief of suffering in patients with malignant disease or intractable pain from other causes.

PELVIC INJURY AS THE RESULT OF TRAUMA*

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The first consideration in studying any injury or disease is the saving of life and restoration of health and function. This is our duty to the individual, but our obligation to the public as a whole goes much further than this. When there is alleged liability for injury the doctor cannot avoid the duty of giving testimony as to the facts as he finds them. He is also called upon to interpret these facts in the form of a diagnosis and to evaluate them to some degree, particularly as to prognosis. The approximate accomplishment of these objectives requires a study of this particular case in the light of a general knowledge of the subject derived from one's own investigation and experience, and that of others as recorded in literature.

The purpose of this paper is to attempt to turn some of this light on a study of problems which have occurred and will occur again as a result of pelvic injuries. The doctor will do well to confine his efforts to the above endeavors no matter what is his relation to the injured or injurer. No matter how bad your findings are for the finances of either side they had better know the worst at once. This will be highly to the interest of the litigant whether it is pleasing or not.

Fracture of the bony pelvic girdle is one of the most prolific sources of successful litigation on the part of the injured. One insurance company has stated that it could reduce automobile insurance 10 per cent if pelvic fractures could be eliminated. Fortunately a large majority of those who do not suffer fatal injury to vital organs recover complete function in weeks or a few months. The diagnosis is usually not a matter of contention, since the X-ray gives evidence of this, but, strange to say, the X-ray sometimes gives more evidence than is actually there. No matter how well the bone heals the question of future pregnancies will arise if in the child-bearing period of life. Many of these which have some permanent deformity of the bone do not have this deformity at a point which interferes with child birth, or any other function. The claim is often made that the patient cannot give birth to a child, which is a very high priced disability. Of course, that is not really true of any woman, as a section can be done. Although I have delivered many women who had previously had a fracture of the pelvis I do not remember one which required section for that alone.

Another condition which is the occasion of contention is so-called traumatic retrodisplacement of the uterus. I have never seen one, though, according to the literature, it is evident that many writers agree and admit that acute, sudden displacement of the uterus due to trauma does occur. The picture described in these proven cases is fairly uniform and definite. Most have followed sudden falls, striking on the buttocks. It is well illustrated by the case treated by the illustrious Marion

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Sims. The patient was an over-weight woman who was riding a pony which was suddenly frightened and jumped from under her. She fell directly on the buttocks and immediately was seized with sudden and excruciating pain in the lower abdomen and pelvis. There was extreme pressure on the rectum and bladder. Examination showed the pelvis extremely tender and the fundus was wedged into the pelvis between the sacrouterine ligaments. He placed her in the knee-chest position and used a spoon to retract the perineum, when the air rushed in and he saw the inside of the vagina as no man had seen before. In this position he replaced the fundus and immediately the patient was relieved. This was the beginning of the Sims' speculum.

Some of the cases resulted from a blow on the abdomen, particularly when the patient was in a squatting position and the bladder full. Uterine bleeding has fairly often been observed following this accident. The question may arise as to what will happen if the uterus is not replaced. Gelhorn believed that it would continue as a painful, disturbing condition. But the story of those proven cases would indicate that the pain is so severe in acute retrodisplacement that something is done. In forming an opinion in a given case it would be in order to consider the presence or absence of the above typical history, and other facts—had competent examination shown the uterus in anterior position formerly. The mere finding of a retrodisplaced uterus would not give much information, as one woman in five is said to have a retrodisplaced uterus, and the symptoms attributed to this are various and at times fantastic, and in the vast majority of cases are due to other causes.

It is generally believed that uncomplicated retrodisplacement of the uterus gives no symptoms, and this is undoubtedly true in perhaps most instances, but there are many cases which do cause symptoms of various kinds.

Backache is a standard complaint of patients who have, or suspect that they have, a retrodisplaced uterus. Bullard reports 80 per cent of 125 uncomplicated cases relieved by suspension. Replacement of the fundus and the use of the pessary is the best way to evaluate this. Those having symptoms are usually associated with various pathological conditions as chronic pelvic inflammation, endometriosis, new growths, subinvolution, childbirth injuries, and various other conditions.

One type of retrodisplacement is congenital. These are often associated with an abnormal curvature of the spine and abnormal inclination of the pelvis as described years ago by Sturmdorf. This measurement is easily made by determining the depth of the most depressed point of the spine as determined by the distance from a straight line connecting the dorsum to the sacrum. The senile uterus is normally retrodisplaced. It is quite possible, though unlikely, that some of these might be made worse by trauma; it would then be the duty of the court to evaluate the difference, if any, before and after injury, and not charge it all to trauma. It is significant that no case of retrodisplacement of the fundus has ever been observed following a crushing injury of the pelvis.

Meyer expresses the difficulties in the adjudication of such very aptly by the following sentence: "In spite of all caution and critical evaluation one will have to be content in many cases with certain probabilities in deciding the question whether the retroversion was due to the trauma. In general one will be less apt to commit an error when one rejects the traumatic etiology than when one concedes to it."

W. Raaflaub, who studied this subject extensively and who is accepted as an authority, gives the following requirements for the diagnosis of traumatic retrodisplacement:

(1) Prior to the accident the patient must have been fully capacitated to earn a living.

(2) The nature and intensity of the trauma must have been such that it could produce retroversion or retroflexion of the uterus.

(3) The lesion which has occurred must present the symptoms of traumatic retroversion of the uterus; among other things a mobile retroversion of the uterus must be present.

(4) The symptoms must disappear at once following reposition. It is obvious that traumatic retrodisplacement of the fundus of the uterus may occur, though very rarely. Only approximately 40 or 50 cases have been recorded in literature. The picture is clear cut. It is characterized by acute symptoms; sudden pain and pressure in pelvis, possibly uterine bleeding following a given type of accident, such as a sudden fall on the buttocks, or violent blow on the abdomen while the patient is in the squatting position and with full bladder. There is tenderness on pressure and the fundus is found in the culdesac. When reduced the patient

is relieved and complete recovery follows in a few days. This picture is totally different from the story usually related in accident claims.

Abortion following injury is a frequent source of litigation, or claims. Any pregnant woman can abort, with or without injury or any known cause. In order to form any reasonable conclusion it is necessary to consider all available information, such as the degree and nature of the injury, which includes a critical study of what actually happened. A study of the patient, her previous history of habitual abortion; previous injuries, childbirth injuries, congenital deformities of the uterus. Hypothyroidism, long automobile trips, and even a desire to have an abortion occur. A high score on these points with an unconvincing story of injury would cause any fair minded doctor to refrain from expressing the opinion that the abortion was due to injury resulting from the given accident.

Traumatic separation of the placenta, particularly during the latter months of pregnancy, as the result of a direct blow is a serious accident which results in death or recovery, but not prolonged disability.

Uterine bleeding following an accident has been the basis of claims. In the absence of direct trauma these may be regarded as functional and, if no other cause exists, will return to normal if not treated too much by curettage and drugs.

As suggested before, the examining physician is not expected to play the part of an attorney and he will probably make a bad failure of it if he is led into this role, but he does need to be a detective of a high order. One is often asked to examine a patient with the patient's physician. It is well to write out every detail of this examination and have the other doctor sign it if he agrees with it, or state his point of view. Otherwise, honest men have been known to change their opinions so thoroughly that they could not be recognized.

Insurance companies and carriers expect to pay for accident damage and I have no doubt if they could get exact justice they would accept it without complaint. It is the unjust penalty which is a burden on them and indirectly on the public, for it is the ordinary citizen who must pay the cost, even though indirectly. When the time arrives that the court will appoint the medical examiner, approximately exact justice will become more generally available, or accomplished. In the mean time doctors should give serious thought to these matters before giving opinions, for their own benefit as well as that of the public.

Medical Arts Building.

OTITIS MEDIA IN CHILDREN*

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The anatomical relations of the tympanic, mastoid and eustachian canal structures in the child carry with them factors which differ from those of the adult and to maintain a mental picture of these relations and gradual transition to that of its final anatomical the development is very essential. In so doing the surrounding and related structures bear an important role that mold the developing picture.

Beginning medially the eustachian canal is relatively shorter, more horizontal and its lower opening, the pharyngeal orifice, is surrounded by an overabundance of lymphatic tissue, part of the Waldeyer ring; below is the tonsillar tissue and above is the large lymphoid structure of the adenoids. Many times this structure acts as a mechanical block by extent of its hypertrophy obstructing the eustachian canal and interfering with proper physiological function. This makes it easier for infection to pass into the middle ear.

The middle ear in definition should include the tympanic cavity, with the attic, the eustachian tube, and the mastoid process.

It has been noted that the greater part of the middle ear is lined with fibro-epithelial membrane and in general it may be considered as an accessory cavity to the nose and with the mucous membrane continuous with that of the naso-pharynx. This lining is thicker in infancy, and tends to become thinner by the end of the first year of life. The eustachian canal is lined with pseudo-stratified ciliated columnar epithelium. The lining becomes flatter the further one passes from the orifice of the eustachian tube.

*Read before the Southampton County Medical Association at Franklin, Va., October 29, 1941.

The tympanic cavity is larger in proportion in early life and begins with almost adult size; it is lined with cuboidal cells interspersed with some connective tissue. Ciliated epithelium in the region of the ossicles and throughout the greater part of the tympanic cavity and mastoid cells consists of only a single layer of squamous cells. The tympanic membrane is angulated and gradually with adult growth assumes a more vertical position. In the mastoid cells there is complete pneumatization of the bone, it being flat, and does not assume the full inverted conical shape until the eighth to tenth year.

The external ear canal varies in its S-shaped angular course, the early infant contour being only smaller in size, but it maintains its normal relationship to that of the adult.

Many factors contribute to the incidence, intensity and duration of otitis media, the occurrence in a given individual and the development of extensions and complications.

It has been shown by Fowler that the young have a higher morbidity:

25 per cent from 0-2 years.
57 per cent from 2-12 years.
20 per cent from 12 years and above.

One must bear in mind here again that infants have less surface pneumatization of their mastoids and, therefore, less epithelium, a shorter and relatively larger eustachian canal, which leads to the fact that they are less likely to have severe mastoid infection. The increased adenoid tissue, however, tends to cause infection more often.

In our part of the country January, February and March seem to be the period of greatest incidence in the yearly cycle. Our records show otitis media to be greatest in the latter part of February and during the month of March. The factor of the young children being indoors with relative lack of sunlight and out in changeable weather coupled with a low immunity at this time of a year is to be considered as its primary cause.

It is considered that heredity controls the pneumatization of the mastoid, anatomy of eustachian tube and growth of the adenoids. A careful history from the parents of these patients will bear out this point. Webster has shown that hereditary factors in susceptibility and immunity to infections are of much importance.

Allergic rhinitis and food allergies tend to cause a reactionary response to the mucous and lymphoid tissues of the nose and throat and sometimes are directly the cause of stoppage of the eustachian tubes.

In routine cultures the organism of the hemolytic streptococcus is the greatest invader followed by the staphylococcus albus and aureus. Of the pneumococcic group types I and III are found more often. In the South the staphylococcus infection is the dominating type.

When infection sets in, the first pathological response is that of edema of the mucous membrane which swells to five or ten times normal thickness, followed by serous effusion into the cavity. Next, a leucocytic infiltration of the submucosa occurs and in time the cavity becomes more purulent. As fluid collects in the cavity there is an increase in hydrostatic pressure and more of the surrounding cells become involved and the secretion more purulent. If the infection in the main cavity persists a thrombophlebitis is produced in the small veins in the mastoid and petrosal areas. Destruction of the epithelium in the various regions occurs and invasion of the cavities with granulation tissue consequently is produced.

This process has its telling effects, depending upon the extent of the pathology, with healing or retrogression. The fibrotic mucous membrane and organized bands of scar tissue remain attached to the ossicles, thus inhibiting free movement and resulting in a restriction of the hearing range. A further restriction pneumatization of the mastoid process may result. Re-growth of osteoid tissue to some extent always follows the breakdown of bone and the connections between the mastoid cells and those of the mastoid antrum may be closed off. The vascularity, already poor, is rendered more so by the deficiently anastomotic cell portions. This must always be considered in dealing with persons who have a history of previous attacks of otitis media.

A classification of the forms of the various manifestations of otitis media is, in the final analysis, one of pathological phases of the ultimate step in which the inflammatory process stops at a given point.

The earliest type of middle ear infection is brought about in the young infant by a collection of mucous seeping into the tympanic area by way of the eustachian canal, more prone to do so when on its back, causing a slight irritation of the lining membrane. This is of little significance except for the danger of infection, as repetition may cause adhesions about the ossicles. The vomiting or regurgita-

tion of food in this condition makes it easier for such inflammation to take place. The hearing range is shortened and an obscure deafness may result in this mild otitis. To think of its origin when endeavoring to find an etiological factor in later life with restricted hearing range is always to be considered.

Of the non-suppurative group tubal catarrh is the mildest form. This is limited to the eustachian canal where its inflammation causes an occlusion to the tube and partial vacuum is produced by absorption of air from the area with a resulting retraction of the tympanic membrane. The symptoms of feeling of fullness, a diminution of hearing and slight tinnitus are usually all that are present. The course is afebrile, painless and lasts several hours.

With the presence of serous exudate in the above condition the secreted fluid is later to become mucoid. The symptoms remain mild but are more marked. The hearing is considerably diminished and the patient's own voice is unduly loud. Younger children occasionally cry with transitory pain and infants fret, pull at their ears or side of their face and become restless.

The ear drum has a characteristic appearance. The surface is moist and glistening. There is moderate injection and where the fluid lies against it a yellow tinge is noted. This fluid level can be noted at various angles behind the drum by tilting the head of the child. The retraction of the drum is retained throughout. Fever is present in only a few of such cases.

It has been noted by many observers that repeated attacks of such infective processes in a patient cause chronic adhesive bands to form about the tympanum. With the organization of the mucous into fibrous connective tissue the handle of the malleus is thrown inward. There is contracture of the tensor tympani muscle and a generalized fibrosis of the tympanic mucosa. A clinical picture of moderate conductive deafness results and some tinnitus is present. When fibrosis of the oval and round windows results there are symptoms simulating those of otosclerosis.

Acute purulent otitis media is considered in the supprative type. Its symptoms and course vary greatly. An upper respiratory infection or tonsillitis often precedes this infection several days. Pain in the ear is the chief complaint, becoming more severe as the inflammation progresses. It may be localized in the ear but frequently radiates to the temporal or occipital area, occasionally the neck and cheek. In younger children restlessness to generalized convulsions or meningismus may occur. Headache, vomiting, stupor, and a rigid neck may result. Vertigo is absent in children. The temperature rises, the younger the child the more abruptly, 102 to 103 degrees. It has been thought that the amount of fever in young children is due to the relatively large tympanic cavity but this idea is discredited. It is now considered that the temperature center of the brain is more easily upset by their infections. On examination, tenderness is found, especially with tragus pressure. This may also be elicited over the mastoid. The drum is congested, the blood vessels are dilated, and the surface of the membrane loses its luster, causing the loss of light reflex. Bulging occurs in a few hours, involving the posterior quadrant first. The malleus loses its prominence, and the membrane assumes a dark red hue. A yellowish area may develop on the membrane indicating the point of rupture. The bulging and intensity vary with each case and may remain localized in various segments of the tympanic membrane.

After rupture the early pus discharge is scant. A blood tinged serous fluid is later purulent and profuse in amount, lasting from a few days to several weeks. The latter becomes thicker, scantier and then gradually subsides. Pulsation of pus may be seen during the active suppuration stage. By the use of the Siegle otoscope one may note this occurrence. Suction can be applied by it to increase its discharge.

The prognosis is usually good. The discharge decreases, stops and the perforation heals. Hearing in most cases returns to normal. In those cases in which otitis media is caused by exanthemata suppuration is prone to occur in the epitympanic space. Complications here are more likely to arise. Large or marginal perforations cause moderate hearing impairment.

The treatment of otitis media should indeed begin with a complete examination of the affected area and all its related components. The examination of the throat for tonsils, lymphoid tissue about the posterior pillars and the upper pharynx, and the use of the small laryngeal mirror or digital examination of the adenoids should be done. The use of the nasopharyngoscope in obtaining a direct view of the eustachian orifices and the presence of hypertrophied lymphoid tissue aid very much in learning the extent of the child's obstructive and inflammatory factors present. In giving each local anatomical

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structure a thorough examination one gains a knowledge of the related and many times the main pathological factor causing the trouble.

The first step is to consider that of prevention; a history of repeated attacks of inflammation of the tonsils and adenoids may be obtained. These structures should be removed *always*. The age factor is to be wholly disregarded; when the child is old enough to have trouble with its ears, and these agents are the cause, it is old enough to have the tonsils and adenoids removed. This cannot be stressed *too much* when these infections occur in summer months and one has the severer winter days ahead to consider.

In patients of poor hygiene, coupled with poor resistance, a complete history and physical should be always obtained. Careful and repeated questioning of the parents in all cases will bring out dormant factors in many instances. An allergy possibility must be kept in mind when considering its effects on the lymphoid structures about the eustachian orifice.

The use of the myringotomy in cases, especially those of young children, gives them great relief, by reducing the pressure in the congested tympanic cavity and by the release of pent up pus. Following this there is a rapid improvement in restlessness and temperature. This procedure should be used in the acute stages and in those of rapid forming signs and symptoms of infection in the tympanic space. The site of incision is made in the posterior upper and mid quadrant in an arc so as to cut the membrane fibers nearer the outer portion of the drum, thus enabling it to have better open drainage. It is best to incise the drum from below upward in young children and infants because of its angulation. This also makes it possible for the operator to see his line of incision, its curvature and the exudate which is more dependent and does not obstruct his view. In all cases this operative procedure is done under nitrous oxide except in young infants. The elimination of the pain factor, which is the greatest fear of the young patients, is very gratifying and future medications are done with less difficulty.

Until five years ago there was little new in the medical treatment of otitis media; now a new approach to this problem has been attained. To prescribe sulfathiazole, sulfanilamide, and sulfapyridine in the earliest stages of otitis media whether suppurative or non-suppurative has been the treatment of choice by many. These most beneficial drugs have proven to do much in lessening the complication severity that has followed this infection. There has been a great tendency to prescribe these medicines without much consideration of the course of the disease, its accompanying pathology or consideration of the limitation of the drug as its side effects. The dose prescribed must maintain sufficient level in the blood to be of therapeutic value. An estimate of the dose of one-half grain per pound of body weight every twenty-four hours is usually best to begin with. In children from 5 to 12 years seven and one-half grains five times per day and over 12 years ten grains is the best for first four or five days. A close checkup on the drug must be maintained for its side reactions such as fever, dermatitis, gastro-intestinal upset, and anemia. The hemoglobin should be taken every day when possible and at least every other day. The commonest mistake to make is that of inadequate dosage and to stop medication too soon. This should not be discontinued when the drainage disappears but kept up for five to six days afterward. In the discharging ear that has assumed a prolonged course the irrigation three or four times daily by a 5 per cent solution of sulfathiazole gives excellent results. The continuation of the oral administration of the drug then is also essential.

It is also important to keep the nasal area open, and a mild astringent is best used—neosynephrin or ephedrine in saline ¼ per cent. Do not let the patient blow his nose at this time, as it increases intratympanic pressure and may force infection further in the inflamed area. Local hygiene to the draining ear should be done by keeping the external canal clean and free from hard dry pus; warm 5 per cent sulfathiazole irrigations are very good.

CONCLUSIONS

1. A thorough physical examination should be made in all cases.
2. Obtain a careful history from the parents.
3. The sulfa drugs should be used in all cases of otitis media, under careful supervision.
4. Surgery of the ear-drum or mastoid should be carried out, when indicated.
5. Do not rely upon medication alone. The combination of the sulfa drugs and myringotomy will terminate the infection more rapidly in most cases of acute suppurative otitis media.

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CASE REPORT OF MATERNAL DEATH

MATERNAL HEALTH COMMITTEE
MEDICAL SOCIETY OF VIRGINIA

The patient was a 35 year old white multipara with eleven previous pregnancies who delivered spontaneously at home on October 12, 1940. Apparently she did well until October 17th, five days postpartum, when chills, fever, nausea, and vomiting began. The information available to the committee is not entirely clear in that the attending physician states that the delivery was spontaneous and that the patient did well until she began having pain in one side, chills and fever and was sent to a hospital. The family on the other hand stated that the physician took the afterbirth as he had done on two previous occasions and that the physician "cleaned the patient out with a glove on his hand", although the time at which this procedure was carried out is not revealed.

At the time of admission to the hospital on the fifth postpartum day the temperature was 105, pulse 120, respirations 22. The patient appeared acutely ill and was tender over the lower abdomen. The note states that the uterus was "cleaned out" and an alcohol wick inserted. On November 5, 1940, twenty-four days postpartum, a pelvic examination showed an indurated mass on the left side of the pelvis "apparently not connected with either adnexa or broad ligament". Six days later examination showed that the mass had extended into the right side of the pelvis. The mass was aspirated and sero-sanguinous material obtained. Under spinal anesthesia the mass was then incised and explored with the gloved finger. No pus was found, but a few hours later there was profuse bleeding from the incision. The incision was packed and 500 cc. of plasma given. The patient went into shock and died on the following day in spite of transfusions of 1700 cc. of whole blood. During the stay in the hospital the patient was given sulfanilamide, aspirin, morphine, ergotrate, and fluids intravenously and subcutaneously.

One blood culture was positive for short chains of gram positive cocci. The hemoglobin determinations varied from 45 to 60%, white blood count from 7,900 to 22,700, red blood count from 3,010,000 to 3,810,000.

COMMENT

This has been classified as a preventable obstetrical death because of the failure to adhere to the present generally accepted procedures in the treatment of puerperal infection and the failure to refrain from procedures which are generally conceded to be harmful. Theoretically postpartum infection should be entirely preventable, but unfortunately this theoretic perfection seems unattainable at present. Infections arising in the pelvis following abortions and term deliveries not only still occur, but are the greatest single cause of obstetrical deaths. The conscientious attendant must make every effort to prevent the occurrence of infection, for here truly an ounce of prevention is worth several pounds of cure. Once infection has occurred every effort must be made to allow the defensive mechanisms of the mother resist the invasive tendencies of the infecting organism. The outcome for the mother, survival or death, is dependent upon the struggle between the resistance of the mother and the virulence of the organism. Anything which lowers the local or general resistance of the mother should be avoided or corrected if possible. Invasion of the uterus in the presence of infection is conducive of great harm to the patient, and is practically never of any help. The only indication existing for "cleaning out the uterus" or "invading the uterine cavity" postpartum is excessive hemorrhage due to retained placental fragments. Curettage of the uterus in the presence of infection breaks down the zone of leucocytic infiltration, which is a protective mechanism which the host is establishing in an effort to limit the infection to the uterine cavity. Any manipulations of the pelvic structures disturb these defense mechanisms and are usually followed by a spread of the infection to surrounding structures. In view of our present knowledge the only operative procedures justifiable in the treatment of puerperal pelvic infections, are incision and drainage of pus accumulations. Abscesses are late manifestations of the disease and are evidence that the host is localizing the disease process.

When these general principles of infection in the pelvis are applied to the present case it immediately becomes obvious why it is classified as preventable. In the present case perhaps we may assume the sequence of events to be as follows: first, the

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statement of the family that the placenta was taken. If this means a manual removal of the placenta was done, it would easily explain the source of the infection. Manual removal of the placenta is a hazardous procedure because of the danger of infection, and should only be done for very definite indications and only under the most rigid aseptic precautions. Secondly, the statement appears that the "uterus was cleaned out". If this implies a second invasion of the uterine cavity at a later date, it undoubtedly played some part in the spread of the infection. At the time of admission to the hospital the uterus was again "cleaned out" and an alcohol wick inserted in the uterus, procedures which were of no value to the patient but which probably were conducive of much harm. Then a subsequent pelvic examination revealed an indurated mass on the left side of the pelvis. This mass undoubtedly represented a pelvic cellulitis or parametritis, an extension of the infection from the uterine cavity to the parametrial tissues. A later examination revealed that this inflammatory process was extending as the mass was larger than previously. These brawny indurated masses in the broad ligament often reach immense size extending in the retroperitoneal spaces, and at times even reaching to the region of kidneys. They may subside and be completely absorbed, or they may suppurate. When suppuration occurs the abscess usually points in the region of Poupart's ligament. Suppuration and pointing however are late manifestations. Incision and drainage should be postponed until suppuration and pointing have occurred. In the present case aspiration of the mass was done and in spite of the fact that no pus was obtained, an incision was made in the mass. It is felt that it was an error in judgment to have made an incision into the mass, before pus had formed.

Parametritis is a slow and long drawn out process, and requires considerable patience in its management. Premature resort to surgical procedures, however, are never helpful, but instead, the rational employment of sulfonamides, numerous small blood transfusions, and general hygienic measures offer better results. It is of course possible that the present patient may have succumbed regardless of the therapy instituted, but certainly the repeated pelvic manipulations were of no value to her and undoubtedly aided in the spread of the infection. She died from postoperative hemorrhage resulting from incision into a hemorrhagic cellular inflammatory mass before localization and suppuration had occurred.

CURRENT INFORMATION ON SYPHILIS

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THE COMMITTEE ON SYPHILIS CONTROL
MEDICAL SOCIETY OF VIRGINIA

Syphilis and Patients' Resistance or Immunity

The practice of syphilology has developed with a tendency to become a mechanized procedure. Schemes or outlines of treatment have been emphasized. There is now being brought to our attention blitz-tactics with the concentration of forces in a short period. These trends have advantages when appropriately applied in all stages of this infection, particularly in early contagious cases, in the pregnant syphilitic patient, and in certain resistant or progressive late cases. These vigorous measures require careful evaluation of each patient as a basis of preventing untoward reactions from the chemical agents administered. In a group of young, healthy individuals with early syphilis the dangers from careless medical management are minimal, but there will be a higher percentage of cures and a smaller percentage of reactions in all patients, young and old, if each one is studied thoroughly for abnormalities resulting either from the syphilitic infection or some associated condition.

> OSLER: "I often tell my students that it (syphilis) is the only disease which they require to study thoroughly. Know syphilis in all its manifestations and relations, and all other things clinical will be added unto you."

When the Spirochæta pallida invades human

tissue there occur two groups of immune reactions, local and general. The biochemical and immunological processes stimulated are not understood. We do know that resistance to new infection and healing of lesions occur. It has been stated that the cure of syphilis is ninety percent host (human body) reaction against the invader and ten percent chemotherapeutic agents.

It is apparent then that all measures which improve the general health of the syphilitic patient improve his chance of cure. This, in general, should include correction and elimination of all associated abnormalities and deficiencies. In earlier medical history it was stated that a good dentist was necessary in the cure of paresis. This was in the period when the development of stomatitis from the mercury precluded the continuation of its administration. It is more true now that the raising of the standards of general health in the syphilitic is necessary for a cure and the avoidance of harm from the drugs used. Adequate nutrition, particularly a menu with abundant proteins, vitamins and salts, is essential. Regular and adequate rest, habits that promote well being, and complete avoidance of alcohol contribute to a good prognosis in the management of syphilis.

It is definitely known that the arsphenamines cause a flare-up in areas where there are latent pyogenic or virus infections. This fact will explain most of the harmful reactions from treatment agents. Correction of focal infections and secondary anemia are especially beneficial.

The mechanism of action of the specific chemical agents used in the treatment of syphilis are classified as, first, Spirochætical action, and second, resistance building action. Putting the patient in as nearly a perfect state of health as possible assists greatly in obtaining the desired end result in the treatment of syphilis; that is, eradication of infection with minimum damage to the patient.

* * *

Blood tests for syphilis were received by about 25 percent of couples marrying in the United States during the fiscal year 1941. This estimate is made from a tabulation of the results of premarital tests reported from 20 to 26 States having laws requiring serologic examination for syphilis of couples applying for marriage licenses. Out of 853,220 examinations reported, 12,954 were positive for syphilis.

A summary of the findings in 20 recent serologic surveys of syphilis in industry, involving approximately 425,000 workers in 800 miscellaneous industries in about 25 communities, disclosed the following: The positive rates for syphilis ranged from a low of one-half to a high of 10½ percent, with an average of 3 percent. In 1937 a positive rate averaging 5 percent was reported for 150,000 workers tested in 150 miscellaneous industrial establishments.

A campaign to prevent organized use of trailers by prostitutes, particularly in areas near defense industries, was recently launched in Ohio.

MENTAL HYGIENE ACTIVITIES

Hygiene and Wholeness

The ancient Greeks made of some of their highest ideals and of some of their strongest desires goddesses and gods, whom they might worship. Although we have little factual knowledge of Aesculapius, the Greek who is looked upon as the father of medicine, we are encouraged to believe that he had many children and that one of his daughters became famous. She is known as Hygeia, and to the Greeks she exemplified sound personal health and wholesome living. From her name are derived those like words in the English language that relate to individual good health and to those agencies and efforts that maintain health by concern about the personal condition and about the environment. The use of the term hygiene may, therefore, properly have reference to soundness of health in the individual and to all those factors in the individual's environment that may affect the individual's health either favourably or unfavourably.

Although we frequently place the adjective mental before the word hygiene, I doubt if such practice is often justified. In the human being, at least,

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we think we find qualities or attributes that are worthy of separate consideration, and we often speak of them under the inclusive term mind and by use of the word mental. But I am not certain that we should limit the possession of mind to mortals, or even to members of the animal kingdom. The other day, in examining an ivy vine, slowly and patiently clambering up a brick wall, I fell to wondering how the vine had found out that on one side of it is a brick wall and on the other three sides only space. But the vine must have been told about the wall, for only on the wall side was it putting out the numberless little hands and feet through which it would fasten itself to the wall. The ivy vine was behaving more adaptably and more intelligently than some other living things that in their egotism limit the possession of mind to us mortals.

For practical purposes it may be permissible to speak of the mind as those attributes by the use of which the living thing acquires information about the environment and by the use of which it attempts to adjust itself to the environment in such fashion as to enable it to continue to live both individually and racially. It is scarcely possible, therefore, to think of mind as separate and apart from the physical body; and it is equally as difficult to contemplate a mindless mortal. Matter and mind are so intermingled in man that one probably should not even attempt to think of the one singly and apart from the other. It may be no more necessary to think of the mind as the product of the physical body than to conceive of the Milky Way as a result of the Universe.

Yet there can be no objection to the study of any of the qualities or attributes of a person if one realizes that one is dealing with the individual only in part and that such fractional effort can never lead to a full understanding of the person. The ancient Greeks would not delimit their contemplation of man either to body or to mind. They thought of man as a totality—a graceful, beautiful, wholesome, competent combination of matter and of qualities that made possible for their small peninsula for a brief period a type of civilization so marvelous that we wonder if the like of it shall ever be known again.

Emerson was an ancient Greek who lived in Massachusetts a hundred years ago. Man is so wonderful that Emerson was constantly enraptured by contemplation of him, when not disgusted by him. Occasionally I am able to understand something that Emerson said. Though he and Walt Whitman must have differed from each other as the stars differ in glory, each thought and spoke of man in terms of grandeur and of majesty. We need, especially in these distracting and tragic days, to turn to each of them for inspiration and especially for stabilization. Emerson said that all nations were unfolded from the first man; that man is explicable by nothing less than all his history; that there is one mind common to all men; and that every man can understand what has at any time befallen any man. And Emerson was obliged, of course, to define history as the record of man's mind.

Not all the best medical textbooks, hygienic or psychiatric, have been formulated by physicians. Not even the most enthusiastic meeting of a mental hygiene society or of a board of health can change the predetermined decrees of Nature. What are those decrees? Those who would presume to proffer advice and counsel about human health and about man's way of living must find out.

J. K. HALL, M. D.

Book Announcements

The Eclipse of a Mind. By ALONZO GRAVES. The Medical Journal Press. New York, N. Y. xii-722 pages. Cloth. Price $5.00.

This admirable volume must by its brilliance assume the proportions of a classic. It is the life history of one Alonzo Graves, an intelligent victim of a manic depressive psychosis. The patient-author was hospitalized on five occasions.

The joint presentation of the complete hospital records and the patient's interpretation of the medical observations is unique. That circumstantiality is to be encountered occasionally in the author does not detract from this work. This volume is not recommended to the light reader; being a study of insanity it is neither a preachment for nor against the care of patients in a mental hospital. To psychiatrists, psychologists and to all with a deep interest in the Manic Depressive Reaction, this book should be of scientific value.

LOUIS KOLIPINSKI, M.D.

The Council
Medical Society of Virginia

A special meeting of the Council was held in Richmond on Tuesday, May 19th, upon request of Dr. Hugh H. Trout, chairman of the Procurement and Assignment Service for Medical Officers in Virginia. The doctors convened in the dining room of the Richmond Academy of Medicine for lunch, with Dr. Roshier W. Miller, president, presiding. Others present were: Dr. J. M. Emmett, president-elect; Dr. Trout; Drs. J. L. Rawls, J. M. Hutcheson, J. L. Hamner, W. C. Akers, W. L. Powell, A. F. Robertson, Jr., H. B. Mulholland, and C. B. Bowyer, councilors from the second through the ninth districts; Dr. Wyndham B. Blanton, editor; Drs. F. C. Pratt, Herbert C. Jones and Julian M. Robinson, as assistants to the councilors; Lt. Col. E. T. Trice, M. C., State Medical Officer for Selective Service; Lt. Com. J. F. Miller, M. C., of the Navy Procurement Service; Major Geo. D. Adamson, Capt. J. M. Dixon, M. C., and Sgt. Jos. Mitchell, of the Medical Officers' Recruiting Board in Roanoke; Dr. Dean B. Cole, chairman of the Legislative Committee of the Society; and the secretary and her assistant.

Dr. Miller stated that he had asked Dr. Cole to attend the luncheon that he might tell the councilors something of the work which he and his committee had accomplished this year. Dr. Cole gave a synopsis of the work since the last meeting of the Society and stressed the need for cooperation. He spoke especially of the splendid assistance which had been given by Mr. L. Preston Collins of Marion in the General Assembly and thought it might be well for this body to express its appreciation of his efforts in behalf of the medical profession, whereupon motion was made and adopted that the President be requested to write Mr. Collins such a letter in the name of the Society.

It was the consensus of opinion that the component societies should be advised as to what had been accomplished by the committee and as to how they as a group and as individuals might assist. Dr. Cole outlined the future work of the Legislative Committee and motion was made that the committee's plans be approved and that the special fund set up for legislative work be used by Dr. Cole's committee as they see fit. This was seconded and adopted.

Maps of Virginia, colored as to congressional districts, has been given each councilor, and Dr. Miller, president, explained that this had been done as a follow-up to letters sent them recently with regard to an amendment to the By-Laws adopted at the last meeting of the Society, calling for ten councilor rather than the nine congressional districts. The councilors generally felt that there would be great confusion if the Society districts do not coincide with the congressional districts, and Dr. Robertson presented the following substitute for Article VIII, Section 7, of the By-Laws: The State shall be divided into councilor districts of the same number as the State congressional districts and these districts shall include the same counties. This was seconded and adopted. The secretary was instructed to advise Dr. Moncure, chairman of the Judicial Committee, of this action that he might offer necessary amendments in the By-Laws at the next meeting of the House of Delegates.

The meeting was then turned over to Dr. Trout who explained the set-up of the Procurement and Assignment Service for Medical Officers and introduced Major Adamson, Captain Dixon, and Sergeant Mitchell, who had been assigned to the Medical Officers' Recruiting Board in this State, and also Lt. Com. Miller who represented the Navy. Dr. Trout said that the Army quota for Virginia is 200 medical men by July 1st and 600 by January 1st, next. Dr. Riggin had found that there are 2,952 doctors in the State, including internes, doctors engaged in industrial work, those of advanced age, and those in active work. The plan suggested was for the councilors and their assistants to secure from clerks of the county courts lists of all doctors in the counties of their respective sections, contact these men and urge them to register with the board at a central location on a designated day. Two to three days would be allotted to each congressional district and Dr. Trout and the councilor or his representative would be on hand to consult with individual doctors when desired. The registration would be for the purpose of surveying the State's medical resources and attempting to secure its quota of doctors, without unduly disrupting medical services for civilians. Dr. Trout stated that it would be especially desirable for physicians under 45 who might wish to enter the services with a commission to volunteer as they would otherwise be subject to draft, unless barred by some physical handicap or for other good reason.

The Councilors decided to call upon representatives of their districts to help in the registrations in sections inaccessible to them, and motion was offered and adopted that the president write such doctors personally, asking them to assist their respective councilors. It was then agreed that the board should start on its tour on the following Monday, accompanied by a representative of the Navy Procurement Service, and schedules were at once arranged to this end.

There being no further business, the meeting adjourned.

AGNES V. EDWARDS,
Secretary.

Approved:
ROSHIER W. MILLER,
President.
June 5, 1942.

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Military Medicine

Virginia Doctors in the Services

As far as possible we list the names of all Virginia doctors in any of the Services. We realize, however, that some names have not yet been reported to the Society's office and will appreciate being advised of name and address of any doctor not included. Names are arranged alphabetically, with home address. We have not indicated rank or service as information has not been complete in regard to some.

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Public Health Statistics

I. C. RIGGIN, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for May 1942, compared with the same month in 1941, and for the period of January through May 1942 compared with the same period in 1941 follows:

	May 1942	May 1941	Jan.-May 1942	Jan.-May 1941
Typhoid and Paratyphoid Fever	16	16	61	58
Diarrhea and Dysentery	141	49	504	275
Measles	958	6,552	4,289	29,745
Scarlet Fever	66	103	660	835
Diphtheria	21	34	200	184
Poliomyelitis	3	1	6	10
Meningitis	25	12	94	57
Undulant Fever	1	3	9	6
Rocky Mountain Spotted Fever	2	4	3	8
Tularaemia	3	4	22	19

PRELIMINARY REPORT ON INDUSTRIAL X-RAYING SERVICE OF THE STATE DEPARTMENT OF HEALTH

The Virginia State Department of Health through its Bureau of Industrial Hygiene and its Tuberculosis Out-Patient Service, since July 1941, has been operating a portable 35 mm. photo-fluorographic chest x-ray unit for use primarily in industry throughout the State. Since this unit has been in operation, approximately 45,000 chest x-rays have been taken in 61 industrial plants. Preliminary tabulations have been made on approximately 30,000 of these x-rays. The results show that 0.97 per cent of those x-rayed had active tuberculosis, 0.91 per cent of which was secondary and 0.06 per cent primary; 0.52 per cent of the total number of workers had secondary tuberculosis which has healed and 1.65 per cent primary healed; and 0.44 per cent of the total number was classified as suspicious for tuberculosis. In addition, the results show 0.25 per cent having other chest conditions which include such pathology as bronchitis, mycotic infections, emphysema, pleurisy, lung tumor, enlarged heart, bony abnormality, foreign body, and enlarged aorta. The total of all pathology was 6.1 per cent of the entire group of approximately 30,000.

The photo-fluorographic unit is maintained primarily as a screen for determining whether or not pathology exists, eliminating from further consideration persons whose chest pictures present no pathology and referring to the industrial physician, the private physician or the local health officer for further consideration those cases which do show pathology.

It is worthy of note that all of the cases of active tuberculosis which have been uncovered through this service have been, or are in the process of being, referred for proper treatment either in one of the sanatoria or at home where home conditions will allow.

This service has been received enthusiastically by industry in general. It is expected that approximately 50,000 workers will be x-rayed each year for the next five years and that by the time this fairly complete coverage of the industrial population has been made, there will be re-x-rays at many of the plants to determine the progress in conditions and treatment.

At the present time the servic is offered primarily to industries working on war contracts in an effort to keep the war workers as healthy as possible so that stepped-up production can be maintained. The service is part of the industrial health program which views industrial hygiene as adult public health in industry.

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Editorials

What Does It Mean?

THE Court of Appeals of the District of Columbia has recently refused to set aside the earlier indictment of the American Medical Association and the Medical Society of the District of Columbia. Their decision raises some interesting questions. What effect will their decision have on the country at large? Will the Supreme Court consent to review the case, and if so, what will its decision be? The wording of the Appellate Court's decision is also interesting, especially its comparison of the legal and medical professions. We are grateful to Mr. Ralph T. Catterall who discusses the decision in a clear and sympathetic manner in the Guest Editorial of this issue of the MONTHLY.

It seems to us a pity that the issue was ever raised. Certainly the District of Columbia was not the place in which to stage a defence of traditional medicine. In the controversy both sides have made mistakes. The purpose of the plan, which was set up in opposition to the wishes of the physicians of the District, might easily have been accomplished if some tactful person, or persons, had persuaded the physicians themselves to set up and supervise this or a somewhat modified plan. It seems also possible that the two medical societies involved, sensing the trends, might have taken the initiative and set up a plan under their own direction rather than be forced to fight one set up by laymen.

Bacterial Warfare

DURING World War I there was talk of the methodical and diabolical spread of disease germs as an instrument of warfare by the enemy. During the years that have passed since that time such discussions are to be found chiefly in the fiction which has war as its background. Recently, if we are to believe the charge brought by Dr. P. Z. King, Director of the Chinese National Health Administration, the Japanese

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are actually engaged in bacteriological warfare against the Chinese. Dr. King cites chapter and verse in a plea for drugs of the sulfonamide group and for rat poison with which to combat epidemics now in process.

We are told that five well authenticated examples of attempt to spread disease among civilians in China are now on record. The tale of horror begins in Ningpo where on a certain day in October 1940 a low-flying Japanese plane spread wheat grains over the city. A few days later an epidemic of bubonic plague broke out claiming ninety-nine victims. About the same time another plane spread wheat and rice grains mixed with fleas over Chuhsien and again bubonic plague was the sequel. A few days later three planes appeared over Kinhwa, dropping many large granules which on microscopic examination showed numerous gram-negative bacilli, morphologically identical with P. pestis. Some months later another plane scattered over Changteh rice and wheat grains and other particles upon which organisms resembling P. pestis were also identified. A week later cases of plague began to appear. An examination of 200 rats caught in Changteh at the beginning of the epidemic showed no signs of plague, but a month later many rats exhibited definite indications of infection. The final example cited is that of an epidemic of serious proportions occurring in three Chinese provinces after "a large number of sick rodents had been set free by the enemy in the epidemic area."

"The enumeration of facts thus far collected" writes Dr. King, "leads to the conclusion that the Japanese army has attempted bacterial warfare in China. Fortunately, the mode of infection and the method of control of plague are known. Our difficulty at present is the shortage of the anti-epidemic supplies required. New drugs, more or less effective for treatment of plague cases, sulfathiazole and allied sulfonamide compounds, China cannot as yet produce herself."

Where Angels Fear To Tread

THOSE who first familiarized themselves with the power and effectiveness of the sulfonamides were so struck with the toxic effects of these compounds that they issued a warning to the timid medical profession, a warning not to go slowly but to go boldly on with its use, in spite of alarming symptoms which might result, provided the indications for this type of therapy were clear cut and definite. The phrase went the rounds: "When you give the sulfonamides, do not look at the patient, look at the chart", which meant that the patient's falling temperature and blood count and a negative blood culture justified his nausea, vomiting, mental confusion and abject appearance.

The experts are now singing another tune. This time they are warning against the widespread and indiscriminate use of the sulfonamides because of an increasing record of disaster. There are doctors who, without blood count, or hospitalization, or follow-up, hand out these powerful drugs with the abandon and complacency with which their forefathers gave calomel and quinine. They seem to believe that every case of pyrexia is a candidate for sulmonamide therapy. The notes of warning against such practice that have been sounded at the last meeting of the American Medical Association, in a recent issue of the Journal of the American Medical Association, and at the Pacific Coast meeting of the Association for the Advancement of Science, are timely and should be emphasized wherever physicians gather to discuss these drugs. Nothing is to be achieved by an attempt to save a patient from a disease only to have him succumb to the therapy employed.

Department of Clinical and Medical Education of the Medical Society of Virginia

Local Programs

At the request of Dr. M. C. Oldham, President of the Northern Neck Medical Association Dr. Fred J. Wampler attended the meeting of that society on May 28 to discuss the program of meetings on Industrial Health being sponsored by the Committee on Industrial Health and this Department. As a result of this discussion arrangements were made for the Northern Neck Medical Association to meet in Richmond at an early date for a symposium on Industrial Health.

Arrangements were made for Dr. W. L. Weaver, Medical Supervisor of the DuPont Ampthill Plant to speak on "The Medical Care of the Industrial Worker" on the program of the Fourth District and Southside Virginia Medical Society at its meeting in Petersburg on June 16. On the same program Dr. Everett R. Evans, Federal Government Research Worker, discussed "Shock".

The Rockingham County Medical Society has requested that speakers be provided for its program on August 10 to discuss various aspects of fractures.

At the request of the Tazewell County Medical Society Dr. J. M. Carlisle, Medical Director of Merck and Company, will speak on "The Physician's Place in Industry" at the July 9 meeting of the society, to be held in Tazewell.

Recent Pamphlets

Discussions of Industrial Accidents and Diseases —U. S. Department of Labor, Bulletin No. 53. Government Printing Office, Washington, 1942 —20c.

This bulletin is a report of the Convention of the International Association of Industrial Accident Boards and Commissions held at Winnipeg, Manitoba, in September 1941. While dealing largely with the legal and administrative aspects of Industrial Health, this bulletin also cites numerous case histories involving Precipitation of Latent Disabilities through Trauma. This subject is treated at length by Dr. John Bart Lauricella, Medical Director of the New York State Insurance Fund, who has drawn upon his experience in his own state, and by other doctors who have had varied experience with industrial accidents in the United States and Canada.

Child Health and the Selective Service Physical Standards—U. S. P. H. Service. Reprint. Government Printing Office, Washington. 1942—5c.

The authors of this article have tried to ascertain how early and in what manner disqualifying conditions in military selectees may be detected with a view to preventing them. The physical records of numerous selectees who have been accepted and others rejected are compared with their records made 15 years ago. It was found that defective dentition was the most frequent cause of rejection. Eye defects, cardiovascular diseases, ear defects, defective lungs, and venereal diseases follow in order of frequency among the group examined. It appears that with respect to dental and visual defects these were already stigmatized 15 years before rejection. The same appears true of cardiovascular diseases and ear defects, but the data are not sufficient to warrant definitive conclusions. The bulletin concludes that "It is particularly disturbing to find that, in spite of knowing, for instance, which children in a community would grow up into physically handicapped adulthood, the health professions, the lay professions, and especially society as a whole, has to date apparently failed to take full advantage of the knowledge."

Analysis of Reports of Physical Examination— Selective Service System, Bulletin No. 1. Washington, November 10, 1941.

This is a summary of data on 19,923 reports of physical examinations made by the Selective Service System, showing the distribution of causes of disqualification of 900,000 rejections for military service. The cases are classified by occupations and cause of rejection.

Any of the above reports may be borrowed from the Executive Secretary.

GEORGE B. ZEHMER,
Executive Secretary.

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Societies

The Fourth District and Southside Virginia Medical Society

Held its annual meeting in conjunction with the Department of Clinical and Medical Education of the Medical Society of Virginia at the Federal Reformatory, Petersburg, on the afternoon of June 16th as guests of the Medical Department of that institution.

The program included the following papers:

"The Effect of Certain Drugs on Body Tissues with Special Reference to the Organ of Hearing"—Pete N. Pastore, M. D., Richmond
"Actinomycosis"—Hilmar Schmidt, M. D., Petersburg
"The Medical Aspects of Chemical Warfare"—J. C. Forbes, M. D., Richmond
"Phonographic Reproduction of Normal and Abnormal Heart Sounds"—Fletcher J. Wright, M. D., Petersburg
"Report of an Interesting Chest Case"—C. I. Pirkle, M. D., Federal Reformatory
Introductory Remarks About the Next Two Papers—Fred Wampler, M. D., Richmond
"The Medical Care of the Industrial Worker"—W. L. Weaver, M. D., DuPont Ampthill Plant, Richmond
"Shock"—Everett I. Evans, M. D., Research worker for the Federal Government
"Treatment of Dementia Praecox"—Morris Binder, M. D., Federal Reformatory

Following the scientific program, the visiting doctors retired to the Dining Hall where they were served an excellent dinner as the guests of the Reformatory. Mr. David M. Heritage, assistant Senior Warden, made the address of welcome, briefly outlining the methods under which the institution was run. Dr. Leta White of Petersburg made the response to the address.

During the business session that followed, officers for the coming year were elected as follows: President—Dr. B. H. Knight, Surry; vice-presidents—Drs. T. S. Jennings, Waverly, and J. M. Hurt, Blackstone; recording secretary—Dr. Leta White, Petersburg; secretary-treasurer—Dr. C. E. Martin, Emporia; Chairman of Steering Committee—Dr. Wright Clarkson, Petersburg.

The secretary was directed to send flowers to Dr. R. L. Raiford of Franklin who is still confined to his bed by illness.

Delegates from the various divisions to represent the Society at the annual convention of the Medical Society of Virginia were chosen, following which a rising vote of thanks was extended the program and the entertaining committees for the excellent entertainment offered through the afternoon and evening.

FRANCIS N. TAYLOR,
Recording Secretary.

The Amelia County Medical Society

Held its annual meeting at Amelia C. H., on June 1st, at which time delegate and alternate were named to represent this county at the State meeting in October, and the following officers were elected: President, Dr. G. A. Arhart, Amelia; vice-president, Dr. H. C. Rucker, Mattoax; and secretary-treasurer, Dr. James L. Hamner (re-elected), Mannboro.

Dickenson-Buchanan County Medical Society.

At the meeting of this Society on May 20th, at Grundy, Dr. E. M. Fusco of the Grundy Hospital presented a film by Dr. Hugh H. Young on Prostatectomy, and also one on Wound Healing. Delegates and alternates to the State Society meeting were elected at this time.

Dr. J. C. Trivett, Page, is president of the Society, and Dr. T. C. Sutherland, Haysi, secretary-treasurer. They meet the third Wednesday in each month.

The Southampton County Medical Association

Held its regular meeting on May 29th at Franklin. The following program was presented: Low Back Pain by Dr. Leroy Smith; Headaches of Ocular Origin by Dr. Morgan B. Raiford; and Paroxysmal Tachycardia by Dr. H. Charles Ballou. All speakers are of Franklin. Following dinner as guests of the Raiford Hospital, Captain T. Addison Morgan, U.S.A., M.C., Fort Story, spoke on Army Medical Service, A Brief Survey.

Dr. Morgan B. Raiford and Dr. W. T. McLemore, Courtland, were re-elected president and secretary-treasurer, respectively, for the coming year.

Norfolk County Medical Society.

At the annual meeting of this Society, on June first, Dr. A. Brownley Hodges succeeded Dr. M. S.

Fitchett as president. Other officers elected are: Dr. N. F. Rodman president-elect, and Dr. R. Bryan Grinnan, Jr., vice-president. Dr. Lockburn B. Scott was re-elected as secretary-treasurer to serve his twenty-third term. Dr. Laura G. Morris was elected to membership.

News

Finals of Virginia's Medical Schools,

MEDICAL COLLEGE OF VIRGINIA

There were 151 graduates in this year's senior classes of the College—64 in medicine, 31 in dentistry, 22 in pharmacy, and 34 in nursing. Commencement exercises started on the evening of May 30th with the Student Body dance at John Marshall Hotel, and on Sunday the baccalaureate sermon was given by Rev. J. Joseph Rives, D. D., at Centenary Methodist Church. The Alumni business meeting was held the following morning, at which time Dr. Charles L. Outland of Richmond was elected president, succeeding Dr. T. Dewey Davis also of this city. This was followed by luncheon, and the final exercises were held that evening with Dr. Harvey E. Jordan, dean of the Department of Medicine, University of Virginia, as guest speaker. Diplomas were then awarded and 27 of the medical graduates received commissions in the Officers' Reserve Corps of the U. S. Army and Navy. The annual reception and dance at the John Marshall Hotel brought festivities to a close.

At the closing exercises, hospital appointments were announced as follows:

MEDICAL COLLEGE OF VIRGINIA HOSPITAL, RICHMOND—Drs. Pauline Nichols Davis, Roanoke; Gerald Fisk Dederick, Jr., Oradell, N. J.; Donald Roscoe Gilbert, Melvin Hill, N. C.; Lofton Howell Harris, Siler City, N. C.; Haywood Northrop Hill, Richmond; Clara Czaczkes Joel, Richmond; Claude Smith Lawson, Jr., Fairmont, W. Va.; Frederick DeWitt Maphis, Jr., Strasburg; John William Massey, Jr., Newport News; Kemp Plummer, Petersburg; Leonard David Policoff, Richmond; and Richard Gresham Stoneburner, Richmond.

STUART CIRCLE HOSPITAL, RICHMOND—Drs. Hiram Wilson Davis, Williamsburg; Hunter Sheppard Jackson, Richmond; and Franklin Lawrence Overton, Jr., Norfolk.

JOHNSTON-WILLIS HOSPITAL, RICHMOND — Drs. George Edward Ewart, Richmond; Augustine Warner Lewis, Jr., Aylett; Harry Charles Robelen, Jr., Richmond; and John Franklin Williams, Fairfax, Calif.

ST. ELIZABETH'S HOSPITAL, RICHMOND—Drs. Victor Page Owen, Phenix; and Herbert Fariss Webb, Emporia.

NORFOLK GENERAL HOSPITAL, NORFOLK—Drs. William Ryland Bailey, Jr., Quinton; Berkeley Hancock Martin, Jr., Richmond; William Watkins Walton, Petersburg; and David Calloway Whitehead, Chatham.

HOSPITAL OF ST. VINCENT DE PAUL, NORFOLK—Drs. James Walter Choate, Jr., Salisbury, N. C.; and Thomas Berkeley Smith, Ashland.

NORFOLK NAVAL HOSPITAL, PORTSMOUTH — Dr. Robert George Dunn, Jr., Richmond.

UNIVERSITY OF VIRGINIA HOSPITAL, CHARLOTTESVILLE—Dr. Horace Emerson Cromer, Jr., Washington, D. C.

LEWIS-GALE HOSPITAL, ROANOKE — Drs. Jacob Samuel Huffman, Timberville; Duvahl Boone Ridgway, Roanoke; and Reuben Franklin Wohlford, Roanoke.

CHESAPEAKE AND OHIO HOSPITAL, HUNTINGTON, W. VA.—Drs. Thomas Blakely Baer, Huntington, W. Va.; Edward Jones Evans, Huntington, W. Va.; and J. S. Robert McFall, Beaver, Pa.

CHARLESTON GENERAL HOSPITAL, CHARLESTON, W. VA.—Drs. Oscar Lee Ramsey, Jr., Gretna; and Catherine Mary Roth, Roanoke.

OHIO VALLEY HOSPITAL, WHEELING, W. VA.—Dr. Ormond Lee Haynes, Marietta, Ohio.

ROPER HOSPITAL, CHARLESTON, S. C.—Dr. Hyman Hertzel Addlestone, Sumter, S. C.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Dr. Robert James Allen, Elizabethton, Tenn.

JOHN SEALY HOSPITAL, GALVESTON, TEX. — Dr. James Robert Brandon, High Point, N. C.

GORGAS HOSPITAL, CANAL ZONE, PANAMA—Drs. George Kirby Brooks, Jr., Richmond; and Oscar Wilde Ward, Jr., Phoebus.

PRESBYTERIAN HOSPITAL, SAN JUAN, P. R.—Dr. Mariano Cecil Caballero, San Juan, P. R.

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CITY HOSPITAL, WINSTON-SALEM, N. C.—Dr. William Foscue Cox, Jacksonville, N. C.

BAPTIST HOSPITAL, WINSTON-SALEM, N. C.—Dr. Rutherford Douglas Neal, Ruffin, N. C.

COOPER HOSPITAL, CAMDEN, N. J.—Dr. Charles Robert DuGan, Philadelphia, Pa.

CUMBERLAND HOSPITAL, BROOKLYN, N. Y.—Dr. Alexander Dworsky, Brooklyn, N. Y.

CONEY ISLAND HOSPITAL, BROOKLYN, N. Y.—Dr. Bernard Gottfried, Brooklyn, N. Y.

METROPOLITAN HOSPITAL, NEW YORK, N. Y.—Dr. Ansel Lipman, Portsmouth.

BETH ISRAEL HOSPITAL, NEW YORK, N. Y.—Dr. Maxwell Jerome Marder, Bayonne, N. J.

HENRY FORD HOSPITAL, DETROIT, MICH. — Dr. Russell Sylvester Fisher, Richmond.

LOUISVILLE CITY HOSPITAL, LOUISVILLE, KY.—Dr. Charles Gabriel Fox, Jr., Shawver's Mill.

STATE OF WISCONSIN GENERAL HOSPITAL, MADISON, WIS. — Drs. David Hoge Gatherum, Athens, W. Va.; and James Albert Thompson, Jr., Marion.

WALTER REED HOSPITAL, WASHINGTON, D. C.—Dr. William Franklin Grigg, Jr., Richmond.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Maurice Sidney Vitsky, Richmond.

ST. LUKE'S HOSPITAL, BETHLEHEM, PA. — Drs. George William and Josephine Trevvett Melchoir, Richmond.

CHARITY HOSPITAL, NEW ORLEANS, LA. — Dr. George David Pleasants, Greensboro, N. C.

WILKES-BARRE GENERAL HOSPITAL, WILKES-BARRE, PA.—Dr. Evelyn Louise Stull, Covington.

GRADY HOSPITAL, ATLANTA, GA.—Dr. Henry Wise Wood, Jr., Shawsville.

LOS ANGELES COUNTY HOSPITAL, LOS ANGELES, CALIF. — Dr. Frederick Ray Woodward, Los Angeles, Calif.

Dr. Anabel Shawkey McConnell, Gate City, was also granted her degree in medicine at this time but returned home to take over the practice of her husband who has been called into Service.

UNIVERSITY OF VIRGINIA

The final celebration for the University's class of 1942 opened on June 12th, with alumni reunion activities, and informal reunions and group dinners occupied most of the day with the 104th annual meeting on Saturday morning. Uniforms of all branches of the Nation's armed forces were conspicuous. Dr. A. W. Beavan, president of the Colgate-Rochester Theological Seminary, gave the commencement sermon on Sunday. The festivities included dances with music by Ray McKinley and his orchestra, and a barbecue on Saturday afternoon. On the afternoon of June 15th, diplomas were awarded about 475 graduates, following which Governor Colgate Darden, himself a student at the University at time of World War I, addressed the student body.

There were 62 graduates from the Department of Medicine, whose names with hospital appointments follow:

UNIVERSITY OF VIRGINIA HOSPITAL, CHARLOTTESVILLE—Drs. Andrew Jackson Crutchfield, Jr., Mayo; Richard Laurens DeSaussure, Jr., Washington, D. C.; Martin Donelson, Jr., Danville; Harry Edwin Farver, McLean; Glenn Taylor Foust, Jr., Norton; William Elgin Harman, Floyd; Donnie Hue Jones, Jr., Micro, N. C.; Donald Waynes Linck, Charlottesville; Preston Brooks Lowrance, Chattanooga, Tenn.; and William Hamilton Shafer, Winchester.

HOSPITAL OF THE PROTESTANT EPISCOPAL CHURCH, PHILADELPHIA — Drs. Samuel Thompson Adams, The Plains; James Marion Bryant, Bramwell, W. Va.; John Alden Vann, Norfolk, and John Wendell Oast, III, Norfolk.

UNION MEMORIAL HOSPITAL, BALTIMORE—Dr. Alfred Rives Berkeley, Jr., Roanoke.

ST. LUKE'S HOSPITAL, BETHLEHEM, PA.—Dr. Louis Percival Britt, Jr., Richmond.

VIRGINIA MASON HOSPITAL, SEATTLE, WASH.—Drs. Lloyd Byron Burk, Jr., Alexandria, and Charles Adley Mangham, San Antonio, Texas.

U. S. NAVAL HOSPITAL (Stations unknown)— Drs. William Edward Byrd, Norfolk; Edmund McKeil Henderson, Bridgetown; Francis Charles Hoare, Boston, Mass.; William Wyatt Hoback, Roanoke; John Kellam Lingo, Pungoteague; Edward Pincus McCreery, Jr., Hinton, W. Va.; and William Nathaniel Thomas, Jr., Annapolis, Md.

WALTER REED HOSPITAL, WASHINGTON, D. C.—Drs. Eugene Mead Caffey, Jr., Trinidad, W. I., and Richard Coffman Shrum, Dayton.

UNIVERSITY HOSPITAL, ANN ARBOR, MICH.—Drs. Edward Malcolm Campbell, Abingdon, and John Moir Hall, Elkin, N. C.

ROPER HOSPITAL, CHARLESTON, S. C.—Drs. Jesse Newton Clore, Jr., Madison; Joseph Wentworth Coxe, III, Roanoke; William Ashby Davis, Agricola; Henry Price Deyerle, Harrisonburg; Clifford Devere Miller, Charlottesville; and James Arthur Thweatt, Petersburg.

PENNSYLVANIA HOSPITAL, PHILADELPHIA—Dr. William Grant Crook, Jackson, Tenn.

BELLEVUE HOSPITAL, NEW YORK CITY—Dr. Monroe Thomas Diamond, New York City.

ALBANY HOSPITAL, ALBANY, N. Y.—Dr. Herbert Grasty Dickie, Jr., Roseland.

WHEELING HOSPITAL, WHEELING, W. VA.—Dr. James William Dickie, Roseland.

SINAI HOSPITAL OF BALTIMORE, BALTIMORE, MD. —Dr. Eugene Oscar Goldstein, Hampton.

STRONG MEMORIAL HOSPITAL, ROCHESTER, N. Y. —Dr. John Chrisman Hawk, Jr., Shanghai, China.

CINCINNATI GENERAL HOSPITAL, CINCINNATI, O. —Drs. Chapin Hawley, Cincinnati, and Edwin Pearson Parker, III, Ft. Bragg, N. C.

GALLINGER MUNICIPAL HOSPITAL, WASHINGTON, D. C.—Dr. Julius Herman Hopkins, Petersburg.

HOSPITAL DIVISION, MEDICAL COLLEGE OF VIRGINIA, RICHMOND—Dr. Jethro Hurt Irby, Jr., Blackstone.

CHARITY HOSPITAL, NEW ORLEANS, LA.—Drs. Betty Allen Magruder, Charlottesville, and Frederick Dashiell White, Norfolk.

CENTRAL MAINE GENERAL HOSPITAL, LEWISTON, MAINE—Dr. David Vye Mann, Randolph, Mass.

GRADUATE HOSPITAL OF UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA—Dr. Drake Pritchett, Danville.

BARONESS ERLANGER HOSPITAL, CHATTANOOGA, TENN.—Dr. Constantine Nicholas Psimas, Portsmouth.

EMPLOYEES' HOSPITAL OF TENNESSEE COAL, IRON & RAILROAD COMPANY, FAIRFIELD, ALA.—Dr. Walker Reynolds, Jr., Anniston, Ala.

ST. LUKE'S HOSPITAL, NEW YORK CITY—Dr. Richard Larcombe Schley, Savannah, Ga.

GRADY MEMORIAL HOSPITAL, ATLANTA, GA.—Dr. Robert Richard Stanley, Charlottesville.

BRYN MAWR HOSPITAL, BRYN MAWR, PA.—Dr. Weir Mitchell Tucker, Richmond.

EMORY UNIVERSITY HOSPITAL, EMORY UNIVERSITY, GA.—Drs. Herbert Edward Valentine, Lawrenceville and Mervin Bowman Wine, Harrisonburg.

TOLEDO HOSPITAL, TOLEDO, O.—Dr. Joseph Leyburn Wilkerson, Durham, N. C.

WESTERN PENNSYLVANIA HOSPITAL, PITTSBURGH, PA.—Dr. Leonard Jerome Yamshon, Haysi.

NEW YORK POST-GRADUATE HOSPITAL, NEW YORK CITY—Dr. Charles Augustus Young, Jr., Norfolk.

LAKESIDE HOSPITAL, CLEVELAND, O.—Dr. Isaac Myers Zigler, Broadway.

ASSISTANT PHYSICIAN, STUDENT HEALTH DEPARTMENT, UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE—Dr. Albert Slocomb MacMillan, Black Mountain, N. C.

Dr. Edgar Lee Crumpacker, Roanoke, was also graduated at this time.

American Medical Association.

In spite of conditions incident to war, there was a registered attendance of 8,103 at the A.M.A. meeting in Atlantic City, early in June. The meeting was under the presidency of Dr. Frank H. Lahey of Boston, Dr. Fred Rankin of Lexington, Ky., being inducted into office for the coming year. In the election of officers, Dr. James E. Paullin of Atlanta, Ga., was named president-elect; Dr. William J. Carrington of Atlantic City vice-president; and Dr. Olin West and Dr. Herman L .Kretschmer, both of Chicago, were relected secretary and treasurer, respectively. Places for the next three annual meetings are: San Francisco for 1943, St. Louis for 1944 and New York for 1945.

Virginia was largely represented at this meeting, 147 having registered from this State, as follows:

Dr. W. Clyde Adkerson, Lynchburg
Dr. C. R. Ahroon, Jr., Quantico
Dr. Guy C. Amory, Hilton Village
Dr. Mallory Andrews, Norfolk
Dr. Saml. A. Anderson, Jr., Richmond
Dr. V. W. Archer, Charlottesville
Dr. E. M. Babb, Ivor
Dr. Harry W. Bachman, Bristol
Dr. Harloe Bailey, Rural Retreat
Dr. Elisha Barksdale, Lynchburg
Dr. Wm. B. Barton, Stonega
Dr. Henry L. Bastien, Arlington
Dr. William Bickers, Richmond
Dr. Staige Blackford, Charlottesville
Dr. H. G. Bland, Newport News

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Dr. Philip Blank, Fort Eustis
Dr. E. D. Blechman, Newport News
Dr. Ben L. Boynton, Norfolk
Dr. Arthur S. Brinkley, Richmond
Dr. M. F. Brock, Norfolk
Dr. Paul D. Camp, Richmond
Dr. Noland M. Canter, Harrisonburg
Dr. Hyman Cantor, Petersburg
Dr. Chas. M. Caravati, Richmond
Dr. B. L. Carleton, Newport News
Dr. J. F. Chairsell, Jr., Christiansburg
Dr. Morris Chase, Camp Lee
Dr. Edgar M. Childrey, Richmond
Dr. Wright Clarkson, Petersburg
Dr. Dean B. Cole, Richmond
Dr. Elizabeth Cole, Norfolk
Dr. C. C. Coleman, Richmond
Dr. John E. Collier, Richmond
Dr. Robt. H. Courtney, Richmond
Dr. L. Philip Cox, Fredericksburg
Dr. Vance M. Cox, Bristol
Dr. C. E. Critcher, New Church
Dr. Donald S. Daniel, Richmond
Dr. J. Wyatt Davis, Jr., Lynchburg
Dr. R. A. Davis, Newport News
Dr. R. M. DeHart, Radford
Dr. J. W. Devine, Jr., Lynchburg
Dr. J. H. Deyerle, Harrisonburg
Dr. Sterrett E. Dietrich, Fort Eustis
Dr. W. K. Dix, Richmond
Dr. J. Newton Dunn, Blackstone
Dr. J. Fred Edmonds, Accomac
Dr. Clayton E. Eley, Norfolk
Dr. J. M. Emmett, Clifton Forge
Dr. Homer E. Ferguson, Richmond
Dr. Carson L. Fifer, Alexandria
Dr. Chas. A. Finnigan, Falls Church
Dr. E. Latane Flanagan, Richmond
Dr. Robt. V. Funsten, Charlottesville
Dr. Emily Gardner, Richmond
Dr. David S. Garner, Roanoke
Dr. E. T. Gatewood, Richmond
Dr. Walter H. Gerwig, Jr., Ft. Monroe
Dr. J. H. Gilligan, Arlington
Dr. James A. Gooch, Alexandria
Dr. Everett V. Gordon, Ft. Belvoir
Dr. Emanuel Greenspon, Newport News
Dr. H. B. Haag, Richmond
Dr. Snowden C. Hall, Danville
Dr. G. G. Hankins, Newport News
Dr. Edwin A. Harper, Lynchburg
Dr. Chas. C. Haskell, Richmond
Dr. Merrill B. Hayes, Ft. Belvoir
Dr. Manes S. Hecht, Fort Eustis
Dr. Martin B. Hiden, Warrenton
Dr. Wm. H. Higgins, Richmond
Dr. L. F. Hobbs, Alexandria
Dr. Paul Hogg, Newport News
Dr. Rudolph Holmes, Charlottesville
Dr. L. A. Houff, Clifton Forge
Dr. K. W. Howard, Portsmouth
Dr. John S. Howe, Richmond
Dr. T. R. Jones, Richmond
Dr. Benj. M. Kagan, Richmond
Dr. Frank A. Kearney, Hampton
Dr. John F. Keithan, Camp Lee
Dr. L. C. Kelly, Portsmouth
Dr. Linwood D. Keyser, Roanoke
Dr. James P. King, Radford
Dr. H. A. Latane, Alexandria
Dr. M. H. Legum, Norfolk
Dr. David E. Liston, Arlington
Dr. James W. Love, Alexandria
Dr. T. B. McCord, Fairfax
Dr. Cameron F. McRae, Fredericksburg
Dr. Colin MacRae, Alexandria
Dr. F. B. Mandeville, Richmond
Dr. Walter B. Martin, Norfolk
Dr. Wm. E. Masters, Quantico
Dr. Lemuel E. Mayo, Jr., Portsmouth
Dr. Jos. Medoff, Fort Eustis
Dr. S. H. Mirmelstein, Newport News
Dr. E. J. Moseley, Jr., Richmond
Dr. H. B. Mulholland, Charlottesville
Dr. Eugenia E. Murphy, Arlington
Dr. Thos. W. Murrell, Richmond
Dr. Beverly W. Nash, Timberville
Dr. R. B. Newman, Hampton
Dr. Samuel Newman, Danville
Dr. S. E. Oglesby, Lynchburg
Dr. R. L. Payne, Norfolk
Dr. John H. Peacock, Ft. Belvoir
Dr. R. W. Postlethwait, Fort Myer
Dr. J. W. Preston, Roanoke
Dr. Saml. E. Proctor, Camp Pickett
Dr. Bernard S. Pupek, Norfolk
Dr. Julian L. Rawls, Norfolk
Dr. D. E. Remsberg, Roanoke
Dr. I. C. Riggin, Richmond
Dr. E. A. Rittenhouse, Fort Myer
Dr. Alex. F. Robertson, Jr., Staunton
Dr. S. H. Rosenthal, Lynchburg
Dr. P. S. Rossiter, Alexandria
Dr. M. Pierce Rucker, Richmond
Dr. James W. Sayre, Newport News
Dr. John H. Selby, Alexandria
Dr. Ernest L. Shore, Harrisonburg
Dr. Reuben F. Simms, Richmond
Dr. Dudley C. Smith, Charlottesville
Dr. Henry C. Spalding, Richmond
Dr. Carl Stein, Ft. Belvoir
Dr. Harry B. Stone, Roanoke
Dr. James B. Stone, Richmond
Dr. L. E. Stubbs, Newport News
Dr. Oscar Swineford, Jr., Charlottesville
Dr. Frank E. Tappan, Berryville
Dr. E. H. Terrell, Richmond
Dr. D. M. Thomasson, Lynchburg
Dr. A. E. Turman, Richmond
Dr. Wm. H. Turner, Jr., Round Hill
Dr. Henry V. Upholt, Jr., Norfolk
Dr. Warren T. Vaughan, Richmond
Dr. Fred J. Wampler, Richmond
Dr. H. Hudnall Ware, Jr., Richmond
Dr. Matthew J. W. White, Luray
Dr. Pauline Williams, Richmond
Dr. S. H. Williams, Alexandria
Dr. Franklin D. Wilson, Norfolk
Dr. Herbert D. Wolff, Jr., Alexandria
Dr. Fletcher D. Woodward, Charlottesville
Dr. Charles A. Young, Portsmouth
Dr. William A. Young, Richmond

Married.

Dr. Herbert Carl Lee, Richmond, and Miss Dovie Johnson Kinlaw, Lumberton, N. C., June 6th. Dr. Lee is a graduate of the University of Wisconsin in 1935. They will make their home in Richmond.

Dr. Robert Coleman Longan, Jr., and Miss Alice Jane VanDenbergh, both of Richmond, June 6th. Dr. Longan is a graduate of the Medical College of Virginia in 1939.

Dr. Douglas Best Stratton, Roanoke, and Miss Myra Aelise McCormick, Lexington, May 16th. Dr. Stratton graduated from the Medical College of Virginia in 1941.

Dr. Carrington Williams, Jr., and Miss Emory Dabney Gill, both of Richmond, June 13th. Dr. Williams received his medical degree from Harvard University this year and will serve his internship at the Boston City Hospital. Mrs. Williams is a daughter of Dr. and Mrs. W. Wallace Gill.

Dr. William F. Grigg, Jr., and Miss Elizabeth Hunter Carper, both of Richmond, June 2nd. Dr.

Grigg was a member of the class of '42 of the Medical College of Virginia.

Dr. Herbert Fariss Webb, Emporia, and Miss Mary Frances Jolly, Millboro, June 3rd. Dr. Webb was a member of the class of '42 of the Medical College of Virginia.

Dr. Augustine Warner Lewis, Jr., Aylett, and Miss Roberta Scott Broaddus, Bowling Green, June 6th. Dr. Lewis graduated from the Medical College of Virginia this year.

Dr. William Foscue Cox, Jacksonville, N. C., and Miss Ruth Gooch Mosby, Newport News, June 2nd. Dr. Cox graduated from the Medical College of Virginia in 1942.

Dr. Leonard David Policoff and Miss Naomi Lewis, both of Richmond, June 25th. Dr. Policoff graduated from the Medical College of Virginia this year.

Dr. Elwood Hess Heilman, during the past year on the resident staff of the Medical College of Virginia Hospitals, and Miss Mary Alice Weeks, assistant dietitian at St. Luke's Hospital, Richmond, June 13.

Dr. Glenn Taylor Foust, Jr., Norton, and Miss Nancy Douglas Tanner, Culpeper, June 12th. Dr. Foust received his medical degree from the University of Virginia this year.

Superintendent at The Lynchburg Colony.

Dr. D. L. Harrell, Jr., formerly clinical director of the Lynchburg State Colony and superintendent of the Petersburg State Colony for the past three years, has been appointed superintendent of the Lynchburg State Colony, succeeding Dr. George B. Arnold, superintendent since February 1934, who left on May the 26th for active service in the Medical Corps of the U. S. Army.

Personnel Notes from the State Health Department.

Dr. E. C. Harper, director of the tuberculosis out-patient service and the crippled children's bureau of the State Health Department, has been named deputy chief in Emergency Medical Service, effective June 1, succeeding Dr. William Grossman who has entered the Service.

Mr. M. Haskins Coleman, executive director of the Richmond Hospital Service Association, Inc., has also been appointed by Dr. Riggin as State hospital officer in the field of emergency medical service.

Dr. Raymond Kimbrough of Norfolk, specialist in dermatology and sypilology, was appointed as of June 1 to the staff of the State Health Department as Venereal Disease Control Officer for the Tidewater Area of the State. Dr. Kimbrough's headquarters will be the Norfolk office of the Southeast Health District.

Dr. William Grossmann, Director, Bureau of Communicable Diseases, State Health Department, Richmond, resigned, effective June 1, to accept a commission in the United States Army.

Dr. B. R. Allen, Health Officer, Isle of Wight-Nansemond-Suffolk Health District, has accepted a commission in the Army and has resigned effective June 15.

Dr. Leo L. Tylec,

Class of '35, Medical College of Virginia, who was practicing in Union City, Conn., before entering the Service a year ago, has recently been promoted to a captain in the Medical Corps of the Army.

Medical College of Virginia News.

A grant of $4,000.00 has been made by the W. K. Kellogg Foundation for loans and scholarships in the school of nursing, making a total of $24,000.00 for loans and scholarships from this foundation for aid to students in the schools of medicine, dentistry, and nursing.

Dr. H. Hudnall Ware, Jr., professor of obstetrics, recently gave a talk at the meeting of the Norfolk Medical Society on *Treatment of Hemorrhage during Pregnancy,* and another at a meeting of the Northern Neck Medical Society on *The Management of Toxemia during Pregnancy.*

Dr. Harvey B. Haag, professor of pharmacology, and Dr. J. H. Weatherby, associate in pharmacology, had an exhibit on Factors Influencing Skin Temperature at the recent meeting of the American Medical Association in Atlantic City. Dr. William M. Bickers, associate in gynecology, also had an exhibit on dysmenorrhea. Dr. C. C. Coleman, professor of neurological surgery, and Dr. Fred J. Wampler, professor of preventive medicine, discussed papers given on the program. A large number of other faculty members attended the meeting.

XUM

Dr. Lewis E. Jarrett, director of the hospital division, attended the meeting of the credentials committee of the American College of Hospital Administrators in Chicago recently.

News From University of Virginia, Department of Medicine.

Dr. Fletcher D. Woodward and Dr. Slaughter Fitz-Hugh presented a paper on "The Treatment of Recent Faciomaxillary and Mandibular Fractures" before the Virginia Society of Ophthalmology and Otolaryngology in Staunton on May 16th.

On May 22nd, Dr. Fletcher Woodward presented a paper before the Regional Zone Conference of the American Society for the Hard of Hearing at Lynchburg, Virginia, his subject being "Modern Treatment of Deafness." He also discussed a paper on "Laryngeal Stenosis" before the Section meeting of the American Medical Association in Atlantic City on June 11th, and presented a paper on "Residual Hearing" at the meeting of the American Otological Society at Atlantic City on May 28th.

At the meeting of the American Broncho-Esophagological Association in Atlantic City on June 9th, Dr. W. W. Waddell and Dr. Fletcher D. Woodward presented a paper on "Bronchoscopy in the New-Born".

Dr. Woodward served on the American Board of Otolaryngology, which met in Philadelphia on June 3, 4, 5, and 6th.

The Jefferson Medical College of Philadelphia.

The One Hundred Seventeenth Annual Commencement of this College was held on June 5, the Commencement address being delivered by Alfred P. Haake, A.B., M.A., Ph.D., Economist and Lecturer, on "Today's Challenge for Tomorrow". The graduating class numbered 131, bringing the total number of graduates to 16,945.The graduates represented twenty different states, the Territory of Hawaii and Puerto Rico. Eighty-five members of the class were commissioned as First Lieutenants in the Medical Reserve Corps of the United States Army.

The annual Alumni dinner was held on June 4 with 550 Alumni in attendance: Dr. Warren B. Davis '10, President of the Alumni Association, presided.

The 38th General Hospital Unit of the Jefferson Hospital left for Camp Bowie, Texas, on May 15, 1942. Approximately sixty-two doctors and one hundred nurses composed this unit. Dr. Baldwin L. Keyes, Lt. Col., M.C., U.S.A., is the Unit Director.

The following additions and promotions in the teaching corps have been made, during the past session: Dr. William Harvey Perkins, Dean and Professor of Preventive Medicine: Dr. Hobart A. Reimann appointed Acting Head of the Department of Experimental Medicine: Dr. Baldwin L. Keyes, Professor of Psychiatry: Dr. Harold W. Jones, Professor of Clinical Medicine and Hemotology and appointed to the Thomas Drake Martinez Cardeza Chair of Clinical Medicine and Hematology: Dr. Martin E. Rehfuss, Sutherland M. Prevost Lecturer in Therapeutics in the Department of Medicine: Dr. Clifford B. Lull, Clinical Professor of Obstetrics: Dr. Garfield G. Duncan, Clinical Professor of Medicine: Dr. William J. Harrison, Associate Professor of Opthalmology: Dr. David R. Morgan, Associate Professor of Pathology: Dr. Robert A. Matthews, Associate Professor of Psychiatry: Dr. William H. Schmidt, Associate Professor of Physical Therapy: Dr. Charles Lintgen, Assistant Professor of Gynecology: Dr. Mario A. Castallo, Assistant Professor of Obstetrics: Dr. Arthur First, Assistant Professor of Obstetrics: Dr. Robert A. Groff, Assistant Professor of Neurosurgery: Dr. Reynold S. Griffith, Assistant Professor of Medicine.

Virginia Society of Ophthalmology and Oto-Laryngology.

The regular annual meeting of this Society was held at the Hotel Ingleside, Staunton, on May 16, with the President, Dr. Mortimer H. Williams, of Roanoke, presiding. Guest speakers were Dr. John M. McLean of New York and Dr. Francis E. LeJeune of New Orleans.

At this meeting, the Society voted to form an Associate Membership which lasts for a period of five years, at the end of which time, the applicant is to obtain a certificate from one of the National Boards or be dropped from the roll. The Secretary is to inform physicians in Virginia, who are limiting their practice to Eye, Ear, Nose, and Throat,

and invite them into the Society either as regular or associate members. Regular membership requires that the applicant hold a certificate from one of the National Boards of either Ophthalmology or Oto-Laryngology. Any one wishing information regarding membership into the Society should write the Secretary in regard to his application.

At this meeting, Dr. Guy R. Fisher of Staunton succeeded to the presidency for the coming year; Dr. E. T. Gatewood of Richmond was named president-elect; and Dr. Meade Edmunds of Petersburg was re-elected secretary-treasurer. Naming of the next place of meeting was left to the recommendation of the Executive Committee.

Dr. Edwin F. Gouldman,

Formerly of Colonial Beach, after nearly two years special work at the Flower and Fifth Avenue Hospital in New York City, went on June the 15th to Mercy Hospital in Canton, Ohio, where he had accepted the appointment of senior resident in obstetrics and gynecology, for a year.

The West Virginia State Medical Association,

Which was scheduled to meet at White Sulphur Springs in July, has found it necessary to change its place of meeting because of unexpected complications incident to the war, and the Program Committee has selected Huntington, with headquarters at the Prichard Hotel. Dates will remain the same—July 13, 14 and 15.

Dr. R. Finley Gayle, Jr.,

Richmond, has been appointed by Governor Darden to the State Hospital Board to fill the unexpired term of Dr. Frank Pratt, Fredericksburg, who recently resigned. His term of office will be to June, 1945.

Dr. N. Thomas Ennett,

Formerly of Richmond, but for several years connected with the health department of Greenville, N. C., was elected president of the North Carolina Public Health Association at its annual meeting in May.

The Medical Society of the State of North Carolina,

At its recent meeting, named Dr. James W. Vernon of Morganton as president-elect, and Drs. George S. Coleman of Raleigh and Julian A. Moore of Asheville vice-presidents. Dr. Roscoe D. McMillan of Red Springs was re-elected secretary-treasurer, and Dr. Donnell B. Cobb of Goldsboro was installed as president.

Dr. Frank L. Apperly,

Professor of Pathology of the Medical College of Virginia, has been notified of his election recently as a Fellow of the Royal College of Physicians of London.

Dr. Frank S. Johns,

Richmond, has been re-elected President of the Hampden-Sydney College Board of Trustees for the third consecutive year.

The Society of Chest Physicians of Virginia,

Organized last Fall at time of the State Society meeting, held its first regular meeting in Richmond on March the 31st, with forty-two physicians from all sections of the State in attendance. An interesting program was presented and the following officers elected: President, Dr. Frank B. Stafford, Sanatorium; vice-president, Dr. S. E. Hughes, Danville; and secretary-treasurer, Dr. Walter L. Nalls, Richmond. Dr. Nalls has since been called to service in the Army and has been succeeded by Dr. E. C. Harper of the State Health Department, Richmond. The next meeting will be held in Roanoke in October, at time of the annual meeting of the Medical Society of Virginia.

Dr. William Harrison Higgins, III,

Visited his home in Richmond for a short time before going to the North Carolina State Tuberculosis Sanatorium where he will work for the summer months. In the Fall he will begin an internship at Duke Hospital, Durham, N. C.

Dr. E. Trible Gatewood,

Richmond, read a paper entitled "Chondroma of the Larynx" before the American Laryngological Association which met in Atlantic City, May 25-27.

Dr. Hunter H. McGuire,

Winchester, was elected President of the American Ophthalmological Society at its recent meeting held at Hot Springs. He is the first Virginian to hold this office and succeeds Dr. Allen Greenwood of Boston. Dr. McGuire is a past president of the

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Medical Society of Virginia and has been the recipient of many other honors from his confreres.

Dr. Warren T. Vaughan,

Richmond, spoke before the Virginia Section of the American Chemical Society on May 29th, at the University of Virginia, his subject being "Occupational and Chemical Aspects of the Allergy Problems."

Medical Society of the District of Columbia.

Dr. A. Magruder MacDonald who was named president-elect in 1941 succeeded to the presidency of this Society on July 1. Others who will serve with him are: President-elect, Dr. Fred R. Sanderson; vice-presidents, Drs. Thomas S. Lee and Alma Jane Speer; secretary, Mr. Theodore Wiprud.

Elected to Membership in American College of Physicians.

At the annual business meeting of the College in April, Drs. Marion S. Fitchett and Randolph Bryan Grinnan of Norfolk were elected to fellowship, and Dr. Maxwell R. Berry of Richmond and Dr. Bernard I. Lidman of Norfolk were elected to associateship.

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Obituaries

Dr. Roy Knight Flannagan,

For more than thirty years an outstanding figure in public health work in Virginia, died at his home in Richmond on June 18th. He was born in Albemarle County in 1870 and graduated in medicine from the University of Virginia in 1894. After practicing at Crozet and Charlottesville, Dr. Flannagan was in 1910 made director of inspections of the State Board of Health and in 1914 he became assistant State Health Commissioner. During the first World War he served the City of Richmond as chief health officer and in 1932 he was appointed to the newly-created position of medical supervisor of jails in the State. At the time of his death, Dr. Flannagan was medical advisor to the State Department of Public Welfare. He was a member of many professional organizations and joined the Medical Society of Virginia in 1910. His wife and three children survive him. One of his sons is Dr. John E. K. Flannagan.

Dr. Noah M. Robinson,

Vinton, died on March 5th, after a long illness with heart disease. He was born in Carroll County sixty-six years ago and, after attending Washington and Lee University, studied medicine at the Medical College of Virginia, from which he received his degree in 1904. He had been a member of the Medical Society of Virginia since the following year. His wife survives him.

Dr. John Miller Turpin Finney,

Internationally known surgeon of Johns Hopkins Medical School, died May 30th after an illness of several months. He graduated in medicine from Harvard Medical School in 1889, following which he went to Baltimore. Dr. Finney rose to the rank of Brigadier-General in the Medical Corps during the World War, being chief consultant in surgery to the American Expeditionary Forces. He served as first president of the American Congress of Surgery and was also a former president of the American Surgical Association.

Dr. Henry G. Steinmetz,

Flint, Mich., died in May, at the age of forty-six years. He was graduated from the Indiana University School of Medicine in 1927 and came to Virginia in 1940, at which time he became assistant health officer of Arlington County. After a year, he served for several weeks as health officer of the Page-Warren-Shenandoah Health District, before moving to Michigan. He had been a member of the Medical Society of Virginia since locating in Arlington County.

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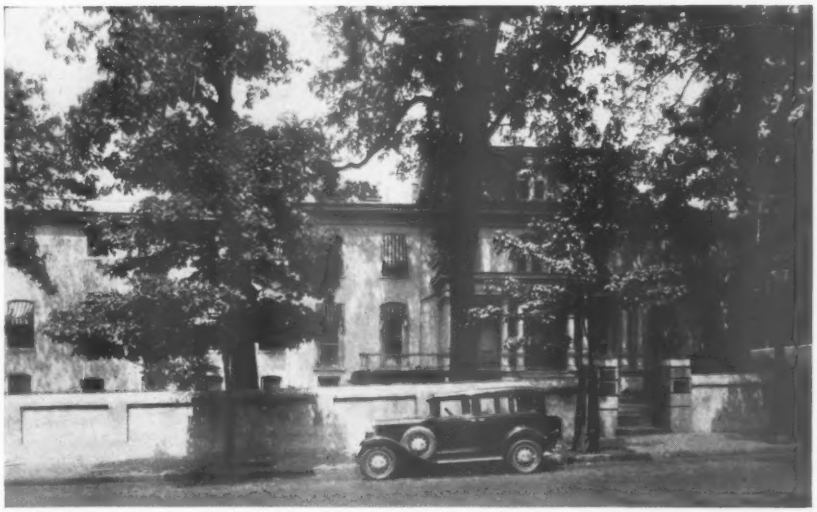

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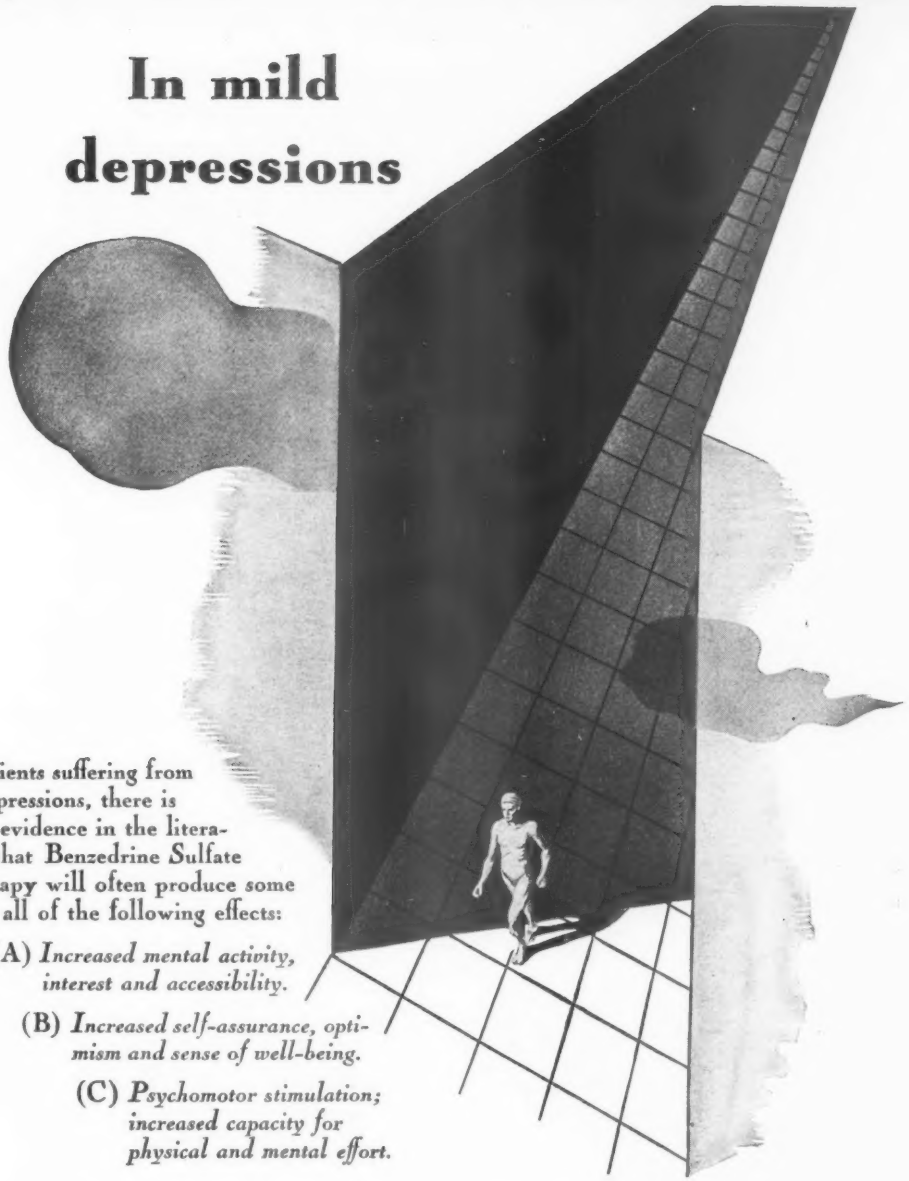

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SOCIETY	PRESIDENT	SECRETARY	TIME OF MEETING
Accomac County	C. E. Critcher, New Church	J. C. Doughty, Onancock	Quarterly.
Albemarle County	R. V. Funsten, University	E. W. Kirby, University	Monthly.
Alexandria City	H. A. Latane, Alexandria	S. H. Williams Alexandria	Monthly.
Alleghany-Bath Counties	L. A. Houff, Clifton Forge	R. P. Hawkins, Clifton Forge	Bi-Monthly.
Amelia County	G. A. Arhart, Amelia	J. L. Hamner Mannboro	
Arlington County	H. L. Bastien, Arlington	J. R. B. Hutchinson, Arlington	January, April, July, August.
Augusta County	H. B. Webb, Waynesboro	J. H. Thomas, Greenville	February, May, August, November.
Bedford County	M. P. Rucker, Bedford	W. V. Rucker, Bedford	Quarterly.
Botetourt County	E. B. Morgan, Fincastle	L. A. Micou, Eagle Rock	
Charlotte County	C. M. Nicholson, Charlotte C. H.	R. Bailey, Keysville	
Clinch Valley Med. Society	C. H. Henderson, Norton	C. B. Bowyer, Stonega	Spring and Fall.
Culpeper County	J. L. Stringfellow, Culpeper	O. K. Burnette, Culpeper	
Danville-Pittsylvania County Division	C. W. Purcell, Danville H. H. Hamner, Chatham	Prentice Kinser, Jr, Danville G. V. Thompson, Chatham	
Dickenson-Buchanan Counties	J. C. Trivett, Page	T. C. Sutherland, Haysi	
Elizabeth City County	R. H. Wright, Phoebus	J. Lee Mann, Hampton	
Fairfax County	Wm. David Chase, McLean	Alice Keissling, Falls Church	February, May, August, November.
Fauquier County	H. L. Townsend, Marshall	W. R. Pretlow, Warrenton	Monthly.
Floyd County	S. T. Yeatts, Floyd	F. C. Bedsaul, Floyd	
Fourth District and Southside	B. H. Knight, Surry	C. E. Martin, Emporia	5 times a year.
Fredericksburg Med. Assn.	L. F. Lee, Passapatanzy	L. A. Busch, Fredericksburg	Monthly.
Halifax County	L. P. Bailey, Nathalie	W. C. Brann, South Boston	
Hanover County	J. A. Wright, Doswell	J. D. Hamner, Ashland	Bi-Monthly.
Isle of Wight County	Rea Parker, Smithfield		
James River Med. Society	E. B. Nuckols, Cumberland	Garland Dyches, Dillwyn	Quarterly.
Lee County	J. H. Dellinger, Pennington Gap	C. H. Henderson, Bonny Blue	
Loudoun County	H. A. Spitler, Middleburg	W. P. Frazer, Hamilton	Monthly.
Louisa County	H. G. Byrd, Louisa	E. B. Pendleton, Cuckoo	
Lynchburg Academy	John Hundley, Jr., Lynchburg	J. A. Wilkins, Lynchburg	Monthly.
Mecklenburg County	H. H. Braxton, Chase City	W. W. Wilkinson, LaCrosse	
Med. Assn. Valley of Virginia	Fred'k Gochnauer, Upperville	H. W. Miller, Woodstock	September.
Med. Soc. Northern Virginia	J. B. McKee, Winchester	J. E. Harris, Winchester	
Medical Society of Virginia	Roshier W. Miller, Richmond	Agnes V. Edwards, Richmond	Roanoke, Oct. 5-7, 1942
Mid-Tidewater Med. Society	A. W. Lewis, Aylett	M. H. Harris, West Point	January, April, July, October.
Nansemond County	E. C. Joyner, Suffolk	B. Randolph Allen, Suffolk	
Nelson County	W. M. Tunstall, Lovingston	J. F. Thaxton, Tye River	
Norfolk County	A. B. Hodges, Norfolk	L. B. Scott, Norfolk	Weekly.
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Northern Neck	M. C. Oldham, Lancaster	Lee S. Liggan, Irvington	Spring and Fall.
Orange County	J. P. Hankins, Orange		
Patrick-Henry Counties	G. B. Dudley, Martinsville	H. M. Price, Martinsville	January, April, July, October.
Piedmont Med. Society	O. N. Shelton, Orange	H. S. Daniel, Louisa	
Princess Anne County	R. W. Woodhouse, Va. Beach	R. A. Stata, Oceana	
Richmond Academy	B. R. Tucker, Richmond	Mary Martha Nokely, Richmond	2nd and 4th Tuesdays.
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Russell County	T. G. Smith, Lebanon, R. D.	W. C. Elliott, Lebanon, R. D.	
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Seaboard Med. Assn.	G. Erick Bell, Wilson, N. C.	C. P. Jones, Newport News	Wilson, N. C., December 1-3, 1942.
Southampton County	Morgan Raiford, Franklin	W. T. McLemore, Courtland	April and September.
South Piedmont Med. Society	Bernard H. Kyle, Lynchburg	F. O. Plunkett, Lynchburg	Spring and Fall.
Southwestern Virginia	W. C. Caudill, Pearisburg	D. B. Stuart, Roanoke	April and September.
Tazewell County	Rufus Brittain, Jewell Ridge	Mary E. Johnston, Tazewell	
Tri-State Med. Assn. Va. & N. C.	A. G. Brenizer, Charlotte, N. C.	J. M. Northington, Charlotte, N. C.	February, 1942, Greenville, S. C.
Va. Neuropsychiatric Society	W. G. Crutchfield, University	E. H. Williams, Richmond	January, May, October.
Va. Orthopedic Society	B. H. Kyle, Lynchburg	C. E. Keefer, Lynchburg	Roanoke, Oct. 5-7, 1942
Va. Pediatric Society	W. L. Harris, Norfolk	E. A. Harper, Lynchburg	Roanoke, Oct. 5-7, 1942
Va. Peninsula Academy of Med.	A. A. Creecy, Newport News	E. B. Mewborne, Newport News	3rd Mondays.
Va. Radiological Society	Wright Clarkson, Petersburg	C. H. Peterson, Roanoke	Roanoke, Oct. 5-7, 1942
Va. Soc. Chest Physicians	F. B. Stafford, Sanatorium	E. C. Harper, Richmond	
Va. Society of Obst. & Gyn.	A. M. Groseclose, Roanoke	W. C. Winn, Richmond	Roanoke, Oct. 5-7, 1942
Va. Society of O. L. & O.	Guy R. Fisher, Staunton	Meade Edmunds, Petersburg	Staunton, 1942.
Va. Urological Society	L. D. Keyser, Roanoke	W. W. Koontz, Lynchburg	Roanoke, Oct. 5-7, 1942
Warwick County	H. W. Potter, Newport News	Jno. F. Gayle, Newport News	Monthly.
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